

PAMLICO COUNTY
COASTAL AREA
MANAGEMENT PLAN

MAY, 1976

HD
211
.N8
P36
1976

HD211.N8 936 1976

13665

COASTAL ZONE
INFORMATION CENTER

COASTAL AREA MANAGEMENT PLAN

PAMLICO COUNTY

N.C. COASTAL RESOURCES COMMISSION

"The preparation of this report was financially assisted by a grant from the State of North Carolina, the National Oceanic and Atmospheric Administration, and the Coastal Plains Regional Commission."



State of North Carolina

COUNTY OF PAMLICO

BAYBORO 28515

May 19, 1976

Coastal Resources Commission
P. O. Box 27687
Raleigh, North Carolina 27611

Sirs:

The County of Pamlico County hereby transmits one certified copy of the Pamlico County Land Development Plan to the Coastal Resources Commission.

The plan was formally reviewed at a public hearing held at the Pamlico County Courthouse on May 13, 1976. The plan was adopted by the Commissioners at a special meeting held on May 13, 1976.

Robert Paul

Chairman, Pamlico County Commissioners

J. Marie Spain

Clerk

(S E A L)

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
II. DESCRIPTION OF PRESENT CONDITIONS	4
A. Population and Economy	5
Labor Force	14
Income Characteristics	19
Manufacturing.	21
Retail and Wholesale Trade	23
Natural Resources Related to the Economy	26
B. Existing Land Use	38
Township I	40
Township II	41
Township III	41
Township IV.	42
Township V	43
Analysis	44
C. Current Plans, Policies, and Regulations	45
Plans and Policies	45
Local Regulations.	46
Federal and State Regulations	49
III. PUBLIC PARTICIPATION ACTIVITIES	52
A. Analysis of Major Land Use Issues.	53
B. Alternatives	57
C. Goals and Objectives	58
Employment	58
Road System	59
Water and Sewer	59
Industrial Development	60
Land Use Controls	60
Recreation	61
Agricultural and Forestry Production	61
Marine Habitat Protection.	61
Wildlife	62
D. Process to Determine Objectives.	63
E. Methods and Results of Public Participation.	63
IV. CONSTRAINTS	69
A. Land Potential	70
Physical Limitations	70

	<u>Page</u>
Fragile Areas	89
Areas with Resource Potential	105
B. Capacity of Community Facilities	114
Existing Water and Sewer Service Areas	115
Design Capacities	115
V. ESTIMATED DEMAND.	129
A. Population and Economy.	130
Ten Year Population Estimates	130
Seasonal Populations.	131
Major Trends in the Economy	132
B. Future Land Needs	134
C. Community Facilities Demand	134
VI. PLAN DESCRIPTION	138
A. Description of Land Classification System	139
B. Projected Description by Township	141
VII. AREAS OF ENVIRONMENTAL CONCERN	145
Coastal Wetlands	146
Estuarine Waters	148
Renewable Resource Areas - Watersheds or Aquifers	153
Fragile, Historic, or Natural Resource Areas - Areas Containing Unique Geological Formations	154
Fragile Historic, or Natural Resource Areas - Historic Places	155
Areas Subject to Public Rights	156
Natural Hazard Areas - Excessive Erosion Areas - Estuarine and River Erodible Areas.	160
Development Standards Applicable to All AEC's	161
VIII. SUMMARY	162
A. Data Collection, Analysis, and Conclusions.	163
B. Application of Data	165

	<u>Page</u>
IX. CITY - COUNTY PLAN RELATIONSHIP REFINED	168
SECTION TWO - INCORPORATED AREAS	169
 <u>PART TWO - ALLIANCE</u> 	
I. INTRODUCTION	171
II. POPULATION	172
A. Future Population	173
III. EXISTING LAND USE	173
IV. CURRENT PLANS, POLICIES AND REGULATIONS	174
V. LAND POTENTIAL	174
A. Physical Limitations	174
B. Soil Limitations	175
C. Source of Water Supply.	175
D. Steep Slope	175
E. Fragile Areas	176
F. Areas of Resource Potential	176
VI. CAPACITY OF COMMUNITY FACILITIES	176
A. Road System	176
B. Schools	176
C. Water and Sewer Treatment Plant	176
VII. ESTIMATED DEMAND	177
A. Ten Year Population Estimates	177
VIII. COMMUNITY FACILITY DEMANDS.	177
IX. GOALS	178

PART THREE - ARAPAHOE

	<u>Page</u>
I. INTRODUCTION	180
II. POPULATION	180
A. Future Population	182
III. EXISTING LAND USE	182
IV. CURRENT PLANS, POLICIES, AND REGULATIONS	184
V. LAND POTENTIAL	184
A. Physical Limitation	184
B. Soil Limitations	184
C. Source of Water Supply	184
D. Steep Slope	185
E. Fragile Areas	185
F. Areas of Resources Potential	185
VI. CAPACITY OF COMMUNITY FACILITIES	185
A. Road System	185
B. Schools	186
C. Water and Sewer Treatment Plant.	186
VII. ESTIMATED DEMAND	186
A. Ten-Year Population Estimates.	186
VIII. COMMUNITY FACILITIES DEMAND	186
IX. GOALS	187

PART FOUR - BAYBORO

	<u>Page</u>
I. INTRODUCTION	189
II. POPULATION	189
A. Future Population.	190
III. EXISTING LAND USE	191
IV. CURRENT PLANS, POLICIES, AND REGULATIONS	191
V. LAND POTENTIAL	192
A. Physical Limitations	192
B. Soils	192
C. Sources of Water Supply	193
D. Steep Slope	193
E. Fragile Areas	193
F. Areas of Resource Potential.	193
VI. CAPACITY OF COMMUNITY FACILITIES	194
A. Road System	194
B. Schools	194
C. Water and Sewer Treatment Plant.	194
VII. ESTIMATED DEMAND	194
A. Ten-Year Population Estimates	194
VIII. COMMUNITY FACILITY DEMANDS	196
IX. GOALS	197

PART FIVE - MESIC

	<u>Page</u>
I. INTRODUCTION	199
II. POPULATION	199
A. Future Population	199
III. EXISTING LAND USE	200
IV. CURRENT PLANS, POLICIES, AND REGULATIONS . . .	201
V. LAND POTENTIAL	201
A. Physical Limitations	201
B. Soil Limitations	202
C. Steep Slope	202
D. Fragile Areas	202
E. Areas with Resource Potential	203
VI. CAPACITY OF COMMUNITY FACILITIES	203
A. Road System	203
B. Schools	203
C. Water and Sewer Treatment Plant	203
VII. ESTIMATED DEMAND	203
A. Ten-Year Population Estimates	203
VIII. COMMUNITY FACILITY DEMANDS	204
IX. GOALS	204

PART SIX - MINNESOTT BEACH

	<u>Page</u>
I. INTRODUCTION	206
II. POPULATION	206
A. Future Population	207
III. EXISTING LAND USE	207
IV. CURRENT PLANS, POLICIES, AND REGULATIONS	208
V. LAND POTENTIAL	209
A. Physical Limitations	209
B. Soil Limitations	209
C. Source of Water Supply	209
D. Steep Slope	210
E. Fragile Areas	210
F. Areas of Resource Potential.	210
VI. CAPACITY OF COMMUNITY FACILITIES	211
A. Road System	211
B. Schools	211
C. Water and Sewer Treatment Plant	211
VII. ESTIMATED DEMAND	211
A. Ten-Year Population Estimates	211
VIII. COMMUNITY FACILITIES DEMAND.	212
IX. GOALS	212

PART SEVEN - ORIENTAL

	<u>Page</u>
I. INTRODUCTION	214
II. POPULATION	214
A. Future Population	215
III. EXISTING LAND USE	216
IV. CURRENT PLANS, POLICIES, AND REGULATIONS . . .	218
V. LAND POTENTIAL	218
A. Physical Limitations	218
B. Soil Limitations	218
C. Source of Water Supply	219
D. Steep Slope	219
E. Fragile Areas	219
F. Areas of Resource Potential.	219
VI. CAPACITY OF COMMUNITY FACILITIES	220
A. Road System	220
B. Schools	220
C. Water and Sewer Treatment Plant.	220
VII. ESTIMATED DEMAND	221
A. Ten-Year Population Estimates	221
VIII. COMMUNITY FACILITIES DEMANDS	221
IX. GOALS.	222

PART EIGHT - STONEWALL

	<u>Page</u>
I. INTRODUCTION	224
II. POPULATION	224
A. Future Population	225
III. EXISTING LAND USE	226
IV. CURRENT PLANS, POLICIES, AND REGULATIONS . . .	227
V. LAND POTENTIAL	228
A. Physical Limitations	228
B. Soil Limitations	228
C. Source of Water Supply	228
D. Steep Slope	229
E. Fragile Areas	229
F. Areas of Resource Potential.	229
VI. CAPACITY OF COMMUNITY FACILITIES	229
A. Road System	229
B. Schools	229
C. Water and Sewer Treatment Plant.	230
VII. ESTIMATED DEMAND	230
A. Ten-Year Population Estimates.	230
VIII. COMMUNITY FACILITIES DEMANDS	230
IX. GOALS.	231

PART NINE - VANDEMERE

	<u>Page</u>
I. INTRODUCTION	233
II. POPULATION	233
A. Future Population	234
III. EXISTING LAND USE	235
IV. CURRENT PLANS, POLICIES AND REGULATIONS . . .	236
V. LAND POTENTIAL	237
A. Physical Limitations	237
B. Soil Limitations	237
C. Source of Water Supply	238
D. Steep Slopes	238
E. Fragile Areas	238
F. Areas of Resource Potential	238
VI. CAPACITY OF COMMUNITY FACILITIES	238
A. Road System	238
B. Schools	239
C. Water and Sewer Treatment Plant	239
VII. ESTIMATED DEMAND	239
A. Ten-Year Population Estimates.	239
VIII. COMMUNITY FACILITIES DEMAND	239
IX. GOALS	240

PART TEN

APPENDIX	242
--------------------	-----

LIST OF TABLES

<u>TABLE NO.</u>	<u>TITLE</u>	<u>PAGE NO.</u>
1	Pamlico County Population Projections	5
2	Population Trends for Pamlico County 1910-1970-1973	7
3	Net Migration-Pamlico County - 1960-1970	8
4	Net Migration by Race, Sex and Age Groups - Pamlico County - 1960-1970	9
5	Pamlico County 1970, Population by Age, Race, and Sex	10
6	Labor Force Summary	14
7	High School Graduates-Pamlico County	15
8	Commuting Patterns for Pamlico County	16
9	Years of School Completed (1970) - Pamlico County	18
10	Pamlico County Family Income	20
11	Per Capita Income	20
12	Retail Sales - Pamlico County	24
13	Pamlico County Trade Inventory	25
14	Seafood Processing Companies	26
15	Fish Catch, Beaufort, Craven, Pamlico Counties, 1972, 1973	28
16	Commercial Forests by Ownership and Volume of Timber - Pamlico Counties, 1964	31
17	Trends in Agriculture 1959-1969	33
18	Agricultural Economic Trends in Pamlico County	35
19	Pamlico County Farm Acreage and Income	35
20	Acres Devoted to Major Crops, Yielded Per Acre, and Value of Production - Pamlico County, 1972	36
21	Farm Income: Cash Receipts from Farm Marketings and Government Payments - Pamlico County, 1972	37
22	Existing Land Use	40
23	Soil Interpretations General Soil Map - Pamlico County, N.C.	82
24	Inventory of Streams	97
25	Existing School Information	121
26	Pamlico County Population Projections	131
27	Additional Seasonal Population - Pamlico Co.	131
28	County Revenues and Expenditures - Pamlico County - Fiscal Year 1971-72	136
29	Analysis of Outstanding Debt - Pamlico County At June 30, 1975	136
30	Analysis of Outstanding Debt - Municipalities At June 30, 1975	137

I. INTRODUCTION

The Coastal Area Management Act of 1974 was one of the most extensive and controversial pieces of legislation ever passed by the North Carolina General Assembly. The Act establishes a cooperative program of coastal area management between local and state governments. The Act requires the development and adoption of a land use plan for each county in the coastal area, and further requires that each county plan conform to State Guidelines, which in turn 'shall be consistent with the goals of the coastal area management system,' as set forth in the first part of the Act.

The purpose of a land use plan for Pamlico County is to achieve the goals of the Coastal Area Management Act. These goals are:

1. To provide a management system capable of preserving and managing the natural ecological conditions of the estuarine system, the barrier dune system, and the beaches, so as to safeguard and perpetuate their natural productivity and their biological, economic and aesthetic values.
2. To insure that the development or preservation of the land and water resources of the coastal area proceeds in a manner consistent with the capability of the land and water for development, use, or preservation based on ecological considerations.
3. To insure the orderly and balanced use and preservation of our coastal resources on behalf of the people of North Carolina and the nation.
4. To establish policies, guidelines and standards for the conservation of resources; the economic development of the coastal area; the use of recreational lands and tourist facilities; the wise development of transportation and circulation patterns; the preservation and enhancement of historical, cultural and scientific aspects of the region, and the protection of common law and public rights in the land and waters of the coastal area.

The following land use plan was prepared by Pamlico County in accord with the Coastal Area Management Act and the Coastal Resources Commission's Guidelines for local planning.

The history and development of the plan covers nearly two years and is a result of the efforts of many people who believed in Pamlico County and the necessity for complying with the law.

If you as an individual have not had the time or opportunity for whatever reason to participate in the process thus far, please consider what has been done and any improvements that can be made. Planning is a continuing process and your recommendations can strengthen or change any goal or objective regardless of how firmly imprinted in this text.

II. DESCRIPTION OF PRESENT CONDITIONS

PRESENT CONDITIONS

Population

The population for Pamlico County has remained relatively constant between 1910 and 1970 and ranges from a low of 9,060 in 1920 to a high of 9,993 in 1950. The greatest change in population between decades was 1910 to 1920 showing a decrease of 906 persons from 9,996 in 1910 to 9,060 in 1920. This is a decrease of approximately nine percent over the ten year period. Following this substantial decrease, the county's population began to increase gradually from 1920 to 1950; however, in 1960 and 1970 the population decreased to 9,850 and 9,467 respectively. The downward trend for population is projected to continue though at a slower rate than between 1960 and 1970.

Population estimates for Pamlico County were made for a fifty year period, 1980, 1985, 1990, 2000, and 2025. It is necessary to realize that the validity of projections made after 1985 decrease significantly since projections are made by using the population figures of the two previous dates, both of those being projected figures. There is no data or personal knowledge available which could contradict the projections made by the Department of Administration and it is realized that major steps would be necessary to alter the decreasing trend in population.

TABLE 1

Pamlico County Population Projections

	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>2000</u>	<u>2025</u>
Range	8,500	8,100	7,700	6,500	6,300
Mean	9,000	8,800	8,600	8,000	7,900
Range	9,500	9,500	9,500	9,500	9,500

These population estimates indicate the decrease in population will continue in Pamlico County and this fact is substantiated by general economic conditions which exist in the County. Table 1 indicates past population based on the 1970 Census for Pamlico County from 1910 to 1970 broken down into townships and towns. Also included for reference purposes is the July 1, 1973 estimates based on revenue sharing figures.

Pamlico County, due to its site and situation, has not experienced the population explosion as has other areas in the coastal plain. This is undoubtedly due to the out-migration of persons, particularly those of childbearing age shown in Tables 4 and 5.

There are several reasons for migration from rural areas such as Pamlico County to urban areas though as a whole this trend is slowing. Some notable causes for migration are:

1. Trends toward fewer and larger farms.
2. Mechanization of agriculture.
3. Lack of economic opportunities other than farming.

Another factor which will increase the pressure for out-migration in Pamlico County is the existence of subsurface phosphate deposits located in the eastern half of the County. This will come about through purchase of large tracts of land owned by long time residents of the County. These deposits will become very attractive as the need for food and therefore fertilizer increases.

The rural citizen seeks employment in urban areas because of better wages amenities which will enhance his life. A number of these individuals will move immediately to be near new jobs while

TABLE 2

Population Trends for Pamlico County 1910-1970-1973

Civil Divisions	1910	1920	1930	1940	1950	1960	1970	1973*
Township 1	1,515	1,444	1,159	1,542	1,951	1,686	1,813	N/A
Township 2	2,120	1,872	1,712	1,124	1,441	1,573	1,489	N/A
Stonewall Town	161	218	329	261	272	214	335	N/A
Township 3	2,498	2,330	2,699	3,073	2,990	3,169	2,886	N/A
Alliance Town	--	--	--	--	--	--	577	576
Bayboro Town	370	349	468	428	453	545	665	664
Mesic Town	N/A	N/A	N/A	N/A	N/A	N/A	369	368
Vandemere Town	296	308	360	436	475	452	379	378
Township 4	1,004	819	908	1,054	1,112	945	922	N/A
Township 5	2,829	2,595	2,389	2,913	2,499	2,477	2,357	N/A
Arapahoe Town	N/A	N/A	290	307	273	274	212	212
Minnesott Beach	N/A	N/A	N/A	N/A	N/A	N/A	41	43
Oriental Town	645	607	601	535	590	522	445	444
PAMLICO COUNTY	9,966	9,060	9,299	9,706	9,993	9,850	9,467	9,428
Change		-906	+239	+406	+287	+143	-383	- 39
Percent Change		-9.1	+2.6	+4.4	+3.0	+1.4	-3.9	- .4

SOURCE: U. S. Census of Population

*Based on U. S. Population Estimates determined from
Revenue Sharing Figures

N/A - Not Available

TABLE 3

Net Migration-Pamlico County

1960 - 1970

Total Population

Actual 1960 Population	9,850
Natural Increase (1960-1970) ¹	726
Expected 1970 Population ²	10,576
Actual 1970 Population	9,467
Population Change Due to Migration	-1,109

Total White Population

Actual 1960 Population	6,239
Natural Increase (1960-1970) ¹	203
Expected 1970 Population ²	6,442
Actual 1970 Population	6,331
Population Change Due to Migration	-111

Total Non-White Population

Actual 1960 Population	3,611
Natural Increase (1960-1970) ¹	523
Expected 1970 Population ²	4,134
Actual 1970 Population	3,136
Population Change Due to Migration	-998

¹Number of Births in Excess of Deaths

²1960 Population Plus Natural Increase

TABLE 4

Net Migration by Race, Sex and Age Groups
Pamlico County 1960 - 1970

1960		1970		Percent of 1960 Group Present in 1970
Age	Population	Age	Population	
Male-White		Male-White		
0-4	292	10-14	310	106.2
5-9	348	15-19	284	81.6
10-14	356	20-24	217	61.0
15-19	290	25-29	189	65.2
20-24	131	30-34	144	109.9
25-24	317	35-44	348	109.8
35-44	383	45-54	354	92.4
45-54	374	55-64	333	89.0
Female-White		Female-White		
0-4	294	10-14	294	100.0
5-9	321	15-19	274	85.4
10-14	227	20-24	223	66.2
15-19	233	25-29	172	73.8
20-24	138	30-34	149	107.9
25-34	351	35-44	358	101.9
35-44	383	45-54	406	106.0
45-54	392	55-64	397	101.3
Male-Nonwhite		Male-Nonwhite		
0-4	284	10-14	216	76.1
5-9	289	15-19	208	72.0
10-14	240	20-24	66	27.5
15-19	168	25-29	60	35.7
20-24	106	30-34	72	67.9
25-34	179	35-44	171	95.5
35-44	149	45-54	138	92.6
45-54	146	55-64	109	74.7
Female-Nonwhite		Female-Nonwhite		
0-4	300	10-14	249	83.0
5-9	275	15-19	202	73.5
10-14	244	20-24	87	35.7
15-19	179	25-29	64	35.8
20-24	108	30-34	77	71.3
25-34	225	35-44	222	98.7
35-44	166	45-54	147	88.6
45-54	150	55-64	128	85.3

TABLE 5

Pamlico County 1970, Population by Age, Race, and Sex

Age	Total		White		Non-White		Total
	Male	Female	Male	Female	Male	Female	
0-4	378	346	254	214	124	132	724
5-9	475	472	280	264	194	208	947
10-14	528	543	310	294	216	249	1,071
15-19	494	476	284	274	208	202	970
20-24	283	310	217	223	66	87	593
25-29	249	238	189	172	60	64	487
30-34	217	226	144	149	72	77	443
35-39	233	298	158	182	75	115	531
40-44	286	283	190	176	96	107	569
45-49	251	281	176	203	73	78	532
50-54	253	272	188	203	65	69	525
55-59	230	256	174	188	56	68	486
60-64	212	269	159	209	53	60	481
65-69	179	198	130	143	49	55	377
70-74	141	194	103	154	38	40	335
75-79	99	104	75	82	24	22	203
80-84	48	82	41	70	7	12	130
85+	21	42	16	32	5	10	63
Median Age	27.6	31.3	30.3	35.7	20.0	22.1	29.4

others, taking jobs in adjoining counties may commute initially, probably moving later. The people who move tend to be younger adults as shown in Table 4, with the migration of women of child-bearing age, the birth rate tends to drop. Therefore the population decline is accelerated due not only to the loss of an individual by migration but also by the loss of potential reproduction.

There is no significant urban area located in Pamlico County. Those seeking employment opportunities available in urban areas must either commute or move to these areas. This resulting loss of population has an adverse affect on the economy of the area. These people are no longer available to the County to support industrial and commercial enterprise. Conversely, industrial and commercial jobs must be available in the County to retain this segment of the population.

The composition of the population of Pamlico County reflects the out-migration of younger adults upon reaching an employable age. A distinct drop in population can be seen from the 15-19 age group to the 20-24 age group as shown in Table 5.

The North Carolina median non-white age of 21.40 does not differ appreciably from that of Pamlico County non-white median age of 21.05. However, the North Carolina median age falls in the 25-29 age group while that of Pamlico County is in the 30-34 age group. Thus, it can be concluded that North Carolina possesses a greater percentage of employable age individuals than does Pamlico County .

The fact that the median age of the non-white population in Pamlico County is in the 20-24 age group, while that of the white population is in the 30-34 age group, is quite significant. Non-white families in the County tend to have more children per household while at the same time having a lower per capita income than do white families. Therefore, as a group those with the most needs have the least economic resources. A temporary alleviation of this problem would be a well organized social service program. Long range solutions could be developed through the training of non-whites for more gainful employment, availability of job opportunities, and possible training in family planning with the inclusion of birth control.

The educational level of the population of Pamlico County is below that of the State of North Carolina with median years completed being 9.3 for males 25 years and over and 10.3 for females 25 years and over as compared to 10.3 and 10.8 respectively. The medium non-white years of school completed is considerably less than the countywide median with males 25 years and over completing only 7.9 years and the corresponding groups of females finishing 9.4 years.

As in most rural eastern North Carolina counties the percentage of college graduates is low due mainly to the lack of technical industrial activity requiring college trained individuals. To secure and retain this segment of the population, technical job opportunities must be created. The better educated and trained segment of the population command more wages thereby helping the overall economy.

Population projections for Pamlico County prepared by the North Carolina Department of Administration using past trends, births, deaths, and net migration indicate that Pamlico County will continue to decrease in year-round population. The fact that Pamlico County is decreasing in population is significant, however, not as important as the segment of the population that is being lost. As the young people of Pamlico County migrate to other areas in search of jobs the older segment of the population is left behind. With the removal of potential birth as women of childbearing age move away and the increasing birth rate as the median and average of the population rises, Pamlico County can only expect the downward trend to accelerate. Population trends were made for 5, 10, 25, and 50 years. It is recognized that as projections are made further in the future their reliability is reduced.

The downward population trend for Pamlico County is reversible if the citizens of the County are willing to make certain sacrifices. An all-out effort by both the citizens and the elected officials is necessary in order to improve the cultural, social and economic climate of the County. Pamlico County has characteristics such as climate, water access, woodlands, etc., which are attractive to not only Pamlico residents but residents of other areas as well. In order to stimulate growth Pamlico County must be prepared to exploit its attributes to the extent that out-migration ceases and in-migration begins.

There are also several major obstacles to sustain growth such as poor soils for septic tanks, lack of sufficient access

to the County, high water table and a considerable flood plain. It is necessary to recognize that these problems exist. It is also necessary to recognize that there will be a price to pay for future growth both monetarily and by the sharing of the amenities in Pamlico County. If the citizens and local government are willing to make these sacrifices, then the present downward trend in population could be reversed.

The Labor Force

The County is having difficulty retaining its population, which includes elements of the labor force. The supply of labor and the characteristics of the labor force are important in determining the economic status and potential of Pamlico County. The data utilized in this chapter varies from 1960 to 1970. Information was obtained from the 1970 U.S. Census and the N.C. Employment Security Commission.

TABLE 6

Labor Force Summary

	1962 ¹		1965 ¹		1970 ¹		1971 ²	
	Pamlico	N.C.	Pamlico	N.C.	Pamlico	N.C.	Pamlico	N.C.
Total Work Force	2,300	1,846,800	2,300	1,969,900	2,380	2,276,100	2,450	2,313,700
Total Employment	2,091	1,748,920	2,139	1,887,164	2,090		2,240	
% Unemployed	9.1	5.3	7.0	4.2	12.2	3.8	8.6	3.9
Total Unemployment	209	97,880	161	82,736	290	86,492	210	90,234

SOURCE: ¹U. S. Census of Social Characteristics, 1970

²N. C. Employment Security Commission

As with the years in Table 6, the total work force has shown a slight increase from 1962 to 1971. Total employment has remained relatively constant with slight increase or decrease from year to

year.

Pamlico County has followed North Carolina and shown an increase in total work force. However, while North Carolina's unemployment decreased from 5.3% to 3.9%, Pamlico County's rate of unemployment was never less than 7% from 1962 to 1971. The Pamlico rate being always two to three times as high as North Carolina's.

It is apparent that Pamlico County has lost a portion of its available labor force through out-migration. The remaining portion of the total work force in Pamlico County, however, still has a much higher rate of unemployment than the statewide average.

New input into the labor force may be determined by an examination of high school graduates. The main concern is the fact that only slightly more than half of the high school graduates remain in Pamlico County to enter the County's labor force. These graduates are more susceptible to further training and command high wages.

TABLE 7

High School Graduates - Pamlico County

	1965	1968	1970	1971	1972
Number of High School Graduates	157	173	155	151	160
Number of High School Graduates Entering Labor Force in Pamlico County	74	53	70	52	64
Percentage	47.1	30.6	45.2	34.4	40

Pamlico County's high schools have been educating young graduates for someone else's labor force. This fact reinforces state-

ments that new jobs must be made available to retain Pamlico County's younger people, the producers. It is significant that the number of graduates has not decreased from 1965 to 1972; yet the percentage of graduates joining the Pamlico County work force declined slightly.

There were 1,010 persons commuting to places of employment outside the County in 1960, by 1970 the total had increased to 1,454. It is reasonable to assume the commuting pattern still exists because there has been no major increase in the number of job opportunities within the County.

It can also be assumed that a majority of these commuters would accept employment closer to their homes in Pamlico County if such employment was available. This would add to the recruitable labor supply available to industry and commerce locating within the County.

TABLE 8
Commuting Patterns for Pamlico County
1960, 1970

County	1960		1970	
	Out-Commuting	In-Commuting	Out-Commuting	In-Commuting
Beaufort	12	40	150	19
Carteret	17	4	44	3
Craven	874	100	1,165	46
Jones	11	3	16	0
Lenoir	0	0	6	0
Onslow	43	7	23	0
Pitt	0	0	15	0
Elsewhere	53	23	35	9
Total	1,010	177	1,454	77
Live & Work in Pamlico County	1,719	1,719	1,539	1,539

TABLE 8
Commuting Patterns for Pamlico County
1960, 1970
(Cont.)

County	1960		1970	
	Out- Commuting	In- Commuting	Out- Commuting	In- Commuting
<u>Employed Residents</u>	2,729	--	2,993	--
<u>Persons Working In Pamlico County</u>	--	1,896	--	1,616
<u>Net Commuting - Gain (+) or Loss (-)</u>	-833		-1,377	

In-commuting should also be noted. In 1960, 177 individuals in-commuted and in 1970 only 77, resulting in a decrease in the number of persons outside the County holding county jobs. This is a direct result of increased competition from outside the County for available jobs. This also results in a high unemployment rate. It is felt that many of the 1,454 commuting to work outside the County are potentially recruitable for work in Pamlico County.

Pamlico County has the potential labor supply in its high school graduates, its recruitable labor force, and its commuting residents. The nucleus to train these people is present in Pamlico County Technical Institute. The County needs jobs for these people to reverse its decreasing population trend.

Table 9
Years of School Completed (1970)
Pamlico County

	<u>White</u>	<u>Non White</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
Persons 25 Years and Over	3,712	1,442	5,154	2,414	2,740	5,154
No School Years Completed	48	26	74	45	29	74
Elementary						
1-4 Years	217	231	448	273	175	448
5-7 Years	661	371	1,032	546	486	1,032
8 Years	408	126	534	274	260	534
High School						
1-3 Years	1,201	455	1,656	691	965	1,656
4 Years	866	179	1,045	404	641	1,045
College						
1-3 Years	206	28	234	109	125	234
4 or More Years	105	26	131	72	59	131
Median Completed	11.0	8.6	9.8	9.3	10.3	9.8

SOURCE: 1970 Census of Population, General Social and Economic Characteristics.

Pamlico County Income Characteristics

The financial status of residents of Pamlico County is examined to determine both earnings and buying power. Data from the 1970 census and the North Carolina State Government Statistical Abstract is included for background information as shown in Tables 10 & 11.

Noticeably, the income of white families is only 65.4 percent greater than that of non-white families, yet the white per capita income is 149 percent greater than non-white. This leads to the conclusion that non-white families have far more members than white families. Therefore non-white individuals have less purchasing power than white individuals. When compared to the other 99 counties Pamlico County's relative position in per capita income has improved from 1947 with a ranking of 98th to a ranking of 72nd in 1970. This increase is due to the out-migration of young people, especially blacks, while retaining is the older, well established sector of the population. If out-migration is halted certain economic stimuli must be added in order to continue to improve Pamlico County's income levels.

The retention of a low family income results in limited purchasing power which has an adverse affect on retail sales, wholesale sales, and services. Due to the lack of income among certain families, heavy burdens are placed on local welfare programs which increase the demand for tax revenue.

When considering the improvement of per capita and family income, one solution lies in upgrading skills of workers enabling them to command higher wages. In recent years, pay scales for

TABLE 10

Pamlico County Family Income

	Non-White	White	Total
Total Families	637	1,749	2,386
Median Family Income	\$4,341	\$7,181	\$5,761
Per Capita Income	1,077	2,687	1,882

SOURCE: 1970 Census of Population, General Social and Economic Characteristics.

TABLE 11

Per Capita Income

	1947	1954	1958	1962	1966	1970
Per Capita Income	383	384	717	1,060	1,424	1,882
Rank in 100 Counties	98	88	94	88	82	72
N.C. Per Capita Income	894	1,190	1,420	1,732	2,277	2,492

SOURCE: North Carolina State Government Statistical Abstract

skilled labor has risen sharply while the pay scale for unskilled labor has suffered with minor increases only due to increases in state and federal minimum wage laws. It must be considered that the demand for unskilled labor diminishes as our society becomes more technical in nature. New industrial and commercial development which may be attracted to Pamlico County will be seeking skilled technical manpower. These enterprises would rely on Pamlico County Technical Institute or similar facilities to train prospective employees to fill positions requiring certain skills. The technical skills for farm labor will also increase as more farming operations become mechanized. This process will both reduce the number of farm laborers and require that those who remain possess certain technical skills.

Manufacturing

"Every community in the United States purchases goods and services from outside its borders. A community pays for these goods and services by specializing in the production of certain goods and services sold outside the community. The goods and services sold outside the community play a key role in determining the economic health of the community."¹

Those manufacturers that sell their products outside the County are considered to be "basic" industries which bring in "outside" capital. Therefore those that sell their products within the County are said to be "non-basic" industries. Some manufacturers are, because they sell both within and outside the

¹Tiebout, Charles M., The Community Economic Base Study, Committee for Economic Development, Dec., 1962.

County, considered basic and non-basic. A county with all non-basic manufacturing, tends to produce a stagnated economy, as no new or outside money enters the County. Pamlico County, a County that imports greatly for goods and services, must export to recoup the monies expended outside the County.

The two outstanding facts facing Pamlico County involve a lack of diversification and the excessive number of females employed in the manufacturing enterprises. It is a historic fact in North Carolina that women have been employed in seasonal, low-skill, low-wage enterprises.

Manufacturers that employ more male employees or firms that employ heads of household and furnish a more stable income, and provide greater fringe benefits are drastically needed. The main basic industry is seafood processing with timber products being second. There has been little or no recent growth in manufacturing and little diversification. Farm products added to seafood and timber products cover most of the County's exports and constitute the basic industries.

The importance of the seafood industry is quite evident. In 1973, Pamlico County ranked fourth among North Carolina counties in the totaling poundage taken with 4,439,500. Of a more significant nature, the County ranked third in income from this poundage with the fishermen receiving \$1,533,697 in 1973.

A need exists to seek diversity of industry. The labor supply is available. However, adequate water supply and sewage disposal is not available. It is doubtful if any major industry

will locate in Pamlico County until this deficiency is remedied. The soil is suitable for industrial sites along the Southern Railroad and NC 55 in the vicinity of Grantsboro and Bayboro. The nucleus for training industrial workers exists in Pamlico County Technical Institute.

There are two prime deterrents to industrial development in Pamlico County. Governmental action directly affects both the lack of water and sewer facilities which are the responsibility of town and county government and lack of north-south transportation is the responsibility of state government. No bridge crosses the Pamlico River to the north or the Neuse River to the south.

Retail and Wholesale Trade

The monetary return from retail sales in Pamlico County has shown increases in line with that of North Carolina since 1947, although the 1974 figures show a slowing percent increase. The comparison of 1974 figures between Pamlico County and North Carolina show Pamlico County beginning to lag significantly behind.

When considering increases or decreases in sales, the tendency of the dollar to decrease in value during recent years must be taken into consideration. Although the number of dollars from retail sales has been increasing over the years, this cannot be attributed to significant increases in retail establishments. The lack of retail growth can be attributed to the ease with which people can commute to urban centers in adjoining counties that offer greater variety, the limited income of Pamlico County residents, and decreases in population due to out-migration.

While retail trade has been increasing, wholesale trade showed a decline in the late 1960's, however, is gradually showing some increase to 1973. Even with the fluctuation in wholesale trade it would not be difficult for retail establishments to look outside the County for their goods.

TABLE 12
Retail Sales - Pamlico County

	<u>1947</u>	<u>1954</u>	<u>1958</u>	<u>1962</u>
Pamlico County	1,205,000	2,285,000	3,127,000	4,065,000
Percent Increase		89.6%	36.9%	30.0%
North Carolina	1,637,627,000	3,072,846,000	4,346,021,000	6,449,162,000
Percent Increase		83.6%	41.4%	48.4%

	<u>1966</u>	<u>1970</u>	<u>1974</u>
Pamlico County	5,638,000	8,009,000	10,790,000
Percent Increase	38.7%	42.1%	34.7%
North Carolina	8,548,508,000	11,731,452,000	18,526,287,000
Percent Increase	32.5%	37.2%	57.9%

SOURCE: Profiles, North Carolina Counties

TABLE 13

Pamlico County Trade Inventory

	Number of Employees, Mid-March Pay Period			Taxable Payrolls Jan.-Mar. (1000)			Total Reporting Units		
	1966	1969	1973	1966	1969	1973	1966	1966	1973
Agriculture Services									
Forestry Fisheries	138	27	62	59	31	99	17	10	22
Fisheries	D		D	D		D	16		21
Contract Construction	21	47	78	17	45	84	5	12	15
Special Trade Contractors			41			54			11
Manufacturing	161	247	292	73	124	225	14	16	15
Apparel & Other									
Textile Prod.			D			D			1
Women's and									
Misses' Outer-			D			D			1
wear									
Women's and			D			D			1
Misses' Dresses									
Trans. & Other Public									
Utilities	42	52	D	38	53	D	6	8	7
Wholesale Trade	268	112	234	113	61	125	15	14	13
Groceries & Related									
Production	239	96	214	92	40	96	10	10	8
Fish & Seafoods	D	96	214	D	40	96	8	10	8
Retail Trade	98	94	171	71	87	140	32	30	28
Food Stores			23			20			10
Grocery Stores			23			20			10
Finance, Insurance, and									
Real Estate	D	D	29	D	D	36	5	5	6
Services	22	25	51	11	16	28	11	10	14
Unclassified Establish-									
ments	D	D	D	D	D	D	3	2	1
Total	800	623	944	405	436	765	108	107	121

SOURCE: North Carolina County Business Patterns

Natural Resources Related to the Economy

Pamlico County's natural resources may be catalogued as a rich agricultural soil, timberland, commercial fishing, sport-fishing and hunting, and vacation areas, a huge phosphate deposit within its borders or at least nearby and contiguous to coastal waters.

Much of the soil needs ditches and large canals for drainage. When this is done it is very rich and level and well adopted for mass production farming. Some of the wasteland is being adapted for timber by the large timber and pulpwood companies such as Weyerhaeuser by ditches and canals. The land is thoroughly cleared, drained, disced and planted with the desired species of trees much as any other crop would be planted. This timber is hauled directly by truck to the sawmills or paper mills.

Commercial fishing consist of the taking of oysters and fish in Pamlico Sound as well as some deep-sea fishing outside of Ocracoke Inlet. The main fishing ports are Oriental, Pamlico, Bayboro, Vandemere, Whortonsville, Hobukcen, and Lowland. The following is a list of sea food processing companies in the County:

TABLE 14

Seafood Processing Companies

<u>Name and Location</u>	<u>Process or Product</u>
Sound Packing Company Whortonsville, N.C.	Distributor of Fresh Seafood
Bay Packing Company Oriental, N.C.	Processing Crab Meat

TABLE 14

Seafood Processing Companies
(Cont.)

<u>Name and Location</u>	<u>Process or Product</u>
Lowland Seafood Company Lowland, N.C.	Processing Crab Meat & Oysters
Fulcher Crab Company Oriental, N.C.	Processing Crab Meat
Henries Brothers Bayboro, N.C.	Processing Seafood
Caroon Brothers Seafood Lowland, N.C.	Processing Seafood
Pamlico Packing Company Vandemere, N.C.	Seafood Processor and Packers
Bayboro Dehydrating Bayboro, N.C.	Manufacturer of Protein Meal

Sportfishing and hunting, in addition to fishing in the Sound, consists of the hunting of wild ducks in the salt marshes and also the shooting of some bear, deer, quail, marsh hens, etc. The wildlife game refuge near Hobucken serves such purpose. These fishermen and guides usually practice subsistence farming to carry over between seasons.

There are a number of vacation camps and cottages along the north shore of the Neuse River near Minnesott Beach, Oriental, and Janiero. The larger camps are Camp Seagull and Camp Don Lee. It is a quiet, scenic area to spend the summer and many people come there for swimming, sailing and water skiing. A golf course also provides activities for year-round users.

Many people come to Oriental year after year and some retire there. The Inland Waterway passes Hobucken and Oriental and some boats stop at the Marina in Oriental.

TABLE 15

FISH CATCH, BEAUFORT, CRAVEN, PAMLICO
COUNTIES, 1972, 1973

<u>County/Fish¹</u>	<u>1972</u>		<u>1973</u>	
	<u>Pounds</u>	<u>Value</u>	<u>Pounds</u>	<u>Value</u>
Pamlico, Total	3,750,600	1,145,027	4,439,500	1,533,697
Shrimp	936,000	667,973	849,000	865,281
Flounders	857,600	233,002	1,244,800	362,447
Crabs, blue, hard	1,330,000	139,189	1,338,900	171,480

¹The three fish listed under county total are those with the largest catch. Thus, the fish listing will not add to the county total.

SOURCE: U. S. Department of Commerce. National Marine Fisheries Service.
1974. Beaufort, North Carolina. (Unpublished data.)

The phosphate mines in adjoining Beaufort County are developing into a tremendous industry. It is one of the richest deposits in existence and there are many other industries that are related to the uses of phosphate that could develop. One of the studies for a deep water canal for Lees Creek to the port of Morehead City follows the Inland Waterway through Pamlico County. Such a canal overland would be easier to maintain than one across the sound to Ocracoke Inlet. Industries related to phosphates are the manufacture of fertilizers, toothpaste, detergent and etc. This is a similar situation to that of the port of Galveston with a deep sea canal leading to Houston, which began as a phosphate mining operation. There are also large deposits of phosphate under parts of Pamlico County.

Summary of Natural Resources:

1. The Neuse River and Pamlico Sound with its seafood industry, sportfishing and recreations are a valuable asset to the County.
2. The rich agricultural soils are the source of much of the County's wealth and a ready source of employment which could be expanded.
3. Its woodlands and swamps are the source of much employment and money.
4. The phosphate mining operation although not presently in the County can afford employment and stimulate other industry in the County. There are suitable deposits of phosphate in Pamlico County that can be operable at a later date,

The Inland Waterway and Oriental Marina.

Commercial Timber Companies

There are a number of large companies who own land in Pamlico County with the main plants operating in neighboring counties as in Craven and Beaufort.

<u>Companies</u>	<u>Ownership in Pamlico County</u>
Weyerhaeuser	20,660.92 acres
Pamlico Timber	16,336.00 acres
International Paper	11,100.07 acres
Taylor	14,051.20 acres
Total	62,148.19 acres

These companies conduct proper forestry activities and provide access to their landholdings for hunters and other recreational activities.

In conjunction with the forestlands and the natural features of the County, recreational activities could be developed on a commercial basis. Hunting, fishing, and water sports have the potential of drawing from well outside county lines. The supplying of facilities and services to vacationers, hunters and fishers could become one of Pamlico County's most productive businesses.

These forest lands are shown on the existing land use map. Private and public recreation lands are shown on the existing land use as well.

TABLE 16

COMMERCIAL FORESTS BY OWNERSHIP AND VOLUME OF TIMBER
PAMLICO COUNTIES, 1964

<u>County</u>	<u>Commercial Forest Land (acres)</u>	<u>Percent of County Land Area (%)</u>	<u>Ownership</u>		<u>Volume</u>	
			<u>Private (acres)</u>	<u>Public (acres)</u>	<u>Sawtimber (mil. board feet)</u>	<u>Growing Stoc (thousand cor</u>
Pamlico	140,400	64.3%	139,400	1,000	480	2,040

SOURCE: Knight, H. and J. McClure, 1966. North Carolina's timber. U.S. Forest Service Resource Bulletin SE-5. Southeastern Forest Experiment Station. Asheville, North Carolina. 47 pp.

Agricultural Economy

The increased interest in industrial and commercial development tends to over-shadow the agricultural segment of the economy. However, agriculture is one of the nation's largest industries. Although the trend is toward fewer workers because of mechanization the income from farming will increase due to the necessity to meet the nation's increasing need for food.

In addition to the farmer's direct support of the overall economy by his own production, he supports other segments of the economy through purchases of machinery, tractors, equipment, fuel, fertilizer, utility services, etc. Products from farms are utilized in meat packing, fertilizer, cannery, textile, and other industries.

North Carolina ranks high among the states in agricultural employment and capacity being first in farm population, first in flue cured tobacco, first in total tobacco production, first in value of home consumption from crops and livestock, first in cash receipts from farm forestry, first in sweet potato production and fifth in cash farm income. In 1969 approximately 21.0 percent of Pamlico County's 216,128 acres of land area was devoted to farming. Total cropland acreage represented 26,767 acres while harvested cropland represented 20,533 acres.

TABLE 17

TRENDS IN AGRICULTURE
1959-1969

County	Number of Farms		Percent Change 1959 to 1969	Total Land In Farms		Percent Change
	1959	1964		1959	1969	
Pamlico	466	330	-38.6%	61,781	45,466	-26.4%
North Carolina	190,567	119,386	-37.4%	15,887,724	12,733,751	-19.8

SOURCE: Stone, Paul S. 1974. The North Carolina Economy; changes in agriculture and nonfarm sectors, 1958-1970. The North Carolina Agricultural Extension Service, Raleigh, 83 pp.

Average Size of Farms in Pamlico County

Year	1959	1964	1969
Size	132.6 acres	172.1 acres	158.9 acres

The number of farms in Pamlico County are steadily decreasing. However, in 1969 it is unusual to recognize that the average farm size decreased since 1964. It is assumed, however, that present costs of production will place more and more pressures for farm consolidation. It is evident that mechanization is playing a more dominant role in farming and this means that former unskilled farm labor will need retaining and other job opportunities.

In 1969 there appears to be a downward trend in agriculture even though the trend is slight. Money from total farm products sold was down from 3,787,850 in 1964 to 3,714,163 in 1969. Crop production suffered the sharpest decline with forest production, livestock and poultry production showing minimal gains. This decrease in production is caused by the reduction in farm land from 56,789 acres in 1964 to 45,446 acres in 1969. It is a little unusual that farm size as well as total farm acreage is decreasing in a rural county such as Pamlico. However, this 1969 slump reversed itself and by 1973 croplands and estimated farm income were on the increase.

Productive agricultural lands are shown on the existing land use map.

TABLE 18Agricultural Economic Trends in Pamlico County

	<u>1964</u>	<u>1969</u>
Total farm products sold	\$3,787,850	3,714,163
Average Sold Per Farm	11.478	12,986
Crops including nursery products and hay	2,944,458	2,567,576
Forest products	36,426	47,885
Livestock, poultry, and their products	806,821	1,098,702

TABLE 19Pamlico County Farm Acreage and Income

<u>Year</u>	<u>Acres of Harvested & Idle Cropland</u>	<u>Estimated Farm Income</u>
1963	29,455	\$4,907,847
1964	30,779	5,346,744
1965	30,785	5,047,636
1966	31,007	4,549,204
1967	31,886	5,226,195
1968	31,012	5,330,478
1969	29,897	5,529,000
1970	29,752	5,668,671
1971	33,553	5,021,454
1972	32,526	5,817,000
1973	N/A	8,786,000

TABLE 20

ACRES DEVOTED TO MAJOR CROPS, YIELD PER ACRE, AND VALUE OF PRODUCTION
PAMLICO COUNTY, 1972

County	Corn for Grain			Soybeans			Tobacco		Value ¹ (million\$)
	Acres Harvested	Bushels Per Acre	Value ¹ (million \$)	Acres Harvested	Bushels Per Acre	Value ¹ (million \$)	Acres Harvested	Pounds Per Acre	
Pamlico	6,400	90.0	0.8	16,500	28.0	1.9	605	1,965	1.0
North Carolina	1,280,000	80.0	\$151.6	1,165,000	25.0	120.2	339,700	2,003	580.9

¹Value of crop production is not equivalent to "cash receipts from farm marketing"

SOURCE: North Carolina Department of Agriculture, 1974. North Carolina Agricultural Statistics, 1973-74 Annual. Prepared in cooperation with U. S. Department of Agriculture. Raleigh, 72 pp.

TABLE 21

FARM INCOME: CASH RECEIPTS FROM FARM MARKETINGS
AND GOVERNMENT PAYMENTS

PAMLICO COUNTY, 1972¹

<u>County</u>	<u>Crops</u>	<u>Livestock and Livestock Products</u>	<u>Government Payments</u>	<u>Total</u>
Pamlico	4,526,000	986,000	305,000	5,817,000

¹Figures are preliminary

SOURCE: North Carolina Department of Agriculture, 1974 North Carolina agricultural statistics, 1973-74 annual. Prepared in cooperation with U. S. Department of Agriculture. Raleigh. 72 pp.

EXISTING LAND USE

Introduction

In order to make proposals and projections for future land use it is first necessary to analyze existing land use patterns in an effort to perceive attributes or problems as they now exist. In the analysis of existing land use a number of techniques were used. The windshield survey was of prime importance in gathering needed data along with the use of aerial photos, tax maps and records, and a variety of census data. The mapping of existing land use was completed in April of 1975 and the land use was recorded using the following categories and color codes.

<u>Category</u>	<u>Color Code</u>
Urban and Built-Up	
Residential	Yellow
Commercial	Red
Industrial	Violet
Transportation, Communication and Utilities	Gray
Government and Institutional	Dark Blue
Cultural, Entertainment and Recreation	Green
Undeveloped Land	White
Agriculture	Brown Hatched
Forest Lands	Green Hatched
Water	Light Blue
Wetlands	Light Blue Hatched
Barren	Brown

A complete set of maps at the scale of 1:400 was completed showing the land use in great detail. This was also transferred to U.S.G.S. maps at the scale of 1:24,000. A depiction of the County's existing land use is located at the county courthouse for review by any citizen. For the purposes of this text a smaller

copy of the existing land use is included for reference.

In an effort to better analyze Pamlico County's land use patterns as they presently exist each township will be discussed as to the types of land use for that township separately and as a part of the County.

Pamlico County consists of five townships. The total acreage of the County is 364,400 with 151,000 acres being water and 213,400 being land. The major categories composing the 213,400 acres are: forestry 157,600, crops and pasture 33,500, and urbanized 2,900. Though Pamlico County does not have any urban area within the County's boundaries there are a number of small towns and villages. There are thirteen small towns ranging from 665 people in Bayboro to 43 people in Minnesott Beach in 1970. The majority of urban oriented land use is clustered around the communities or stripped along Pamlico's primary highways between communities. There are 3,585 dwelling units in Pamlico County of which 509 are mobile homes. Also 623 seasonal dwelling units are scattered throughout the County.

Pamlico County is primarily a rural County with the majority of its land in production. Pamlico County depends primarily on agriculture, forestry and fishing as is evident by the percentage of land use equated with these activities. Pamlico County has a great deal of fragile land due to its large amount of shoreline and the lack of appreciable elevation throughout the County.

Pamlico County has approximately 263 miles of primary and secondary roads which provide fair accessibility to the clusters

of population. The highest average daily traffic count in Pamlico County is on Highway 55 between Grantsboro and Alliance. This average daily count in 1974 stands at 4,000.

The lack of north-south transportation has "haunted" the peninsula on which Pamlico County is located since the transition from water transportation to vehicular transportation. This fact continues to be a major "stumbling block" in the development of the County and the utilization of the County's assets. The matter overshadows any other transportation problem in the County to such an extent that it is the only major matter covered in the thoroughfare plan. The system of roads is one of many factors which directly affects the development of urban type development in an area.

TABLE 22
Existing Land Use

<u>Land Use</u>	<u>Acres</u>	<u>Percent</u>
Forestry	157,600	94.0
Crops and Pasture	33,500	15.7
Urban & Built-Up	2,900	1.4
Marshland	<u>19,000</u>	<u>8.9</u>
Total	213,000	100.0

Township No. 1

Township One is the western most township in Pamlico County and therefore the closest township to an urban center, New Bern. The Township extends from the northern to the southern limits of the County with the northern portion being forested pocosin.

Scattered agricultural and residential development occurs south of Highway 55 with urban type uses located predominantly in the two nodes in the County, Grantsboro and Reelsboro. Township One has 763 permanent structure homes of which 124 are seasonal. Also there are 141 mobile homes of which 15 are seasonal units. Kennels Beach has the highest intensity seasonal population in the County. The Township has a fair network of roads with two arteries, Highway 55 and 306 and secondary roads south of Highway 55. Most of the residential development occurs along the major highways and along the Neuse River in the southern portion of the County.

Township No. 2

Township Two extends from the center of Pamlico County to the Pamlico Sound at the eastern limits of the County. The western half of the Township is forested pocosin and the eastern portion along the sound is marshland. There is scattered agricultural activity among the four major communities of Township Two, Stonewall, Pamlico, Whortensville, Florence and Merritt. The network of highways in the Township is not very extensive and serves primarily the area around Stonewall and to the south and east. Residential development is concentrated mainly around Stonewall with other scattered locations. Township Two has 395 permanent structured homes of which 71 are seasonal. There are 78 mobile homes and 25 of these are seasonal units.

Township No. 3

Township Three is located in the north central portion of the County and contains the county seat, Bayboro and three other nodes,

Vandemere, Mesic, and Alliance. Alliance and Bayboro have generally contiguous boundaries and are stripped along most of the western portion of Highway 55 within the Township. These areas provide the majority of the commercial areas for not only the Township but for the entire County. This is also the primary area of governmental activity within the County since Bayboro is the county seat.

Approximately two-thirds of the land area of the Township is forested pocosin in the northern part of the Township shifting to agriculture to the south and finally developed land along to southern most area of the Township. The road system in the Township is good immediately north and south of Highway 55 with almost a total absence of state maintained roads in the northern reaches of the Township. Naturally, residential development is located along the major road network concentrating in the four nodal areas. There are 775 permanent structure homes of which 39 are seasonal. Township Three has 92 mobile homes with six of these being seasonal units.

Township No. 4

Township Four is located in the northeastern corner of the County and is the most isolated of the townships, the majority being located on Goose Creek Island. A portion of the Township is included in Goose Creek Wildlife Management Area in the west bounding the intercoastal waterway on both sides. Approximately one-third of the Township, along its eastern boundary, is marshland. The Township has two minor nodes, Hobucken and Lowland in which most of the urban type development, including residential

development occurs. Township Four has 261 permanent structured homes and 17 of these are seasonal. Also there are 41 mobile homes of which 10 are seasonal. The road system in the Township is poor due to the general lack of access and quality of the living environment in the Township and thereby lack of population.

Township No. 5

Township Five is located in the southeastern portion of the County and has a long shoreline of high banks on the Neuse River. The Township has some forestlands and a fairly large percentage of agriculture. The Township has a fairly good system of roads, and development has occurred around the three nodes in the Township, Oriental, Minnesott Beach, and Arapahoe. The Township has the highest concentration of seasonal residences in the County. There are 88 permanent structured dwelling units of which 239 are seasonal. Also there are 157 mobile homes and 77 of these are seasonal units. The Township has an extensive waterfront with high bluffs and beaches.

ANALYSIS

One significant compatibility problem is that of the fish houses practice of disposing their waste back into the estuarine waters. Another significant problem is agricultural run off from fields and pastures into estuarine waters.

Possibly the largest possible compatibility problem is the estuarine pollution from waterfront development.

Estuarine pollution would be highly incompatible with commercial as well as sports fishing.

Hopefully, with the existing subdivision regulations, stringent septic tanks regulating and zoning regulations problems with unplanned development will not continue in Pamlico County and there will be no implications for future land use.

The only area in the next ten-year planning period expected to experience a major land use change will be the Bayboro, Alliance, and possibly Stonewall area because they will have water and sewer community facilities designating their land use into the transition category. Phosphate mining will probably not take place in the next ten years.

CURRENT PLANS, POLICIES, AND REGULATIONS

Local, State, and Federal Regulations, Plans and Policies

Pamlico County has a variety of local ordinances, plans, and codes as well as being subject to State and Federal regulations. Endorsement of these codes is handled by county, state, and federal authorities depending on the type and origin of the regulations.

Plans & Policies

The following plans and policies will be discussed in relationship to Pamlico County:

- a. transportation
 - b. community facilities plan
 - c. utilities extension policies
 - d. open space policies
 - e. recreation policies
 - f. prior land use plan
 - g. prior land use policies
-
- A) A thorough fare plan for Pamlico County was adopted by Pamlico County, February 1971. It was adopted by the North Carolina State Highway Commission, May, 1971. The thoroughfare plan shows existing and proposed minor collector roads.
 - B) A water and sewer plan has been prepared for Pamlico County by Paul M. Van Camp Associates, Inc., (1968). This plan discusses the needs of the communities in the County as well as the cost of the proposed facilities. Since this plan has been completed, Bayboro and surrounding areas have been placed in a 201 planning area for which needs and cost of the waste/water facilities treatment will be discussed when its plan is completed.
 - C) No utilities extension policies exist for the County at present.
 - D) There are no open space policies in Pamlico County.
 - E) There are no recreation policies.
 - F) A land development plan was completed for Pamlico County by the Division of Community Planning in August, 1969.

This plan was the culmination of two other plans done previously by the Division of Community Assistance. These plans were the Land Potential Study, and Economic Potential Study. (July, 1969) A community facilities plan based on all the previous plans done by DNER, Division of Community Assistance, was completed in February, 1970.

- G. Prior land use policies are covered by the county subdivision and zoning ordinance.

Local Regulations

- A. Zoning Ordinance: A zoning ordinance for Pamlico County was adopted July 13, 1970. Those towns in the County may come under the zoning ordinance if they desire. At this time Oriental, Vandemere, and Stonewall adhere to the county zoning ordinance. The county zoning administrator enforces the zoning ordinance where it is in effect.
- B. Subdivision Regulations: The Board of County Commissioners approved the county subdivision regulations with an effective date of December 3, 1973 in accordance with the provisions of North Carolina General Statutes Chapter 153, Article 20A. The subdivision administrator enforces the subdivision ordinance for the planning board and county commissioners.
- C. Floodway Ordinance: There is no floodway ordinance in effect, however, the County complies with the regulations of the National Flood Insurance Program.

North Carolina is one of the few states in the nation that has and enforces a statewide series of construction codes. Building, plumbing, heating and air conditioning, electrical construction, repair and alteration must conform to these State codes. These codes are applicable throughout the State at the time of their adoption by the State Building Codes Council. Every new or substantially repaired or altered building must be constructed or repaired in accordance with these codes. Any unit of local government may enforce either the State Building Code or any similar and equally strict building code.

Pamlico County enforces the North Carolina State Building, Electrical, and Plumbing Codes. The County employs a building inspector, an electrical inspector, and utilizes the Pamlico County Health Department to conduct plumbing inspections. The County building and electrical inspectors are responsible for inspections within several incorporated areas as well as the unincorporated portion of the County. Building, electrical and plumbing inspections are conducted not only in the unincorporated areas of the County but also within the town boundaries of the eight incorporated towns of Pamlico County.

Federal & State Regulations

Septic Tank Regulations

Local Regulations: Primary responsibility for inspection and approval of septic tank system has traditionally belonged to local health departments (which in North Carolina may be organized on a county or district basis), their boards being authorized under G.S. 130-17(b) to adopt rules and regulations necessary to protect and advance the public health. The rules and regulations of the local health department may be no less stringent than the minimum requirements of the rules and regulations promulgated by the Commission for Health Services. Where a peculiar local condition or circumstance exists (or in an emergency situation), local health department regulations may be more stringent than those of the Commission. Because of the peculiar physical conditions and characteristics which make conventional septic tanks unsuitable in many areas of the coast, the local septic tank ordinance of Pamlico County is more stringent than the existing rules of the Commission for Health Services. A copy of said ordinance is found in the appendix.

There are no historic district regulations, nuisance regulations, dune protection ordinances, sedimentation codes, or environmental impact statement ordinances enforced by the County.

Within the past few years, the Federal and State Governments have become involved in the environmental aspects of land planning. As the impact of poor land development practice becomes pressing, the Federal and State Governments have been called upon to take corrective measures. The result has been that new legislation, aimed at preventing these costly development errors, has been adopted. Although these laws are enacted at other levels, the enforcement provisions generally are left to the local government with sanctions against non-enforcement.

The State and Federal Governments have numerous regulations either directly or indirectly related to land use.

North Carolina State Regulations

- Coastal Area Management Act
- Air Pollution Controls
- Regulation on Open Burning
- Water Quality Management
- * Septic Tank Regulations
- Water Capacity Use Areas
- Well Construction Regulations
and Standards
- Dredge and Fill
- Fisheries Regulations
- Sediment Control Regulations
- Mining Regulations
- Soil & Water Conservation Regulations

Federal Regulations

- Environmental Protection Agency Regulations
- Federal Flood Insurance Regulations

In Pamlico County these regulations are enforced jointly by Federal, State, and Local agencies. The County health Department and the North Carolina Department of Natural and Economic Resources conducts enforcement of the State Regulations while Federal and County authorities have the responsibility for the enforcement of Federal Regulations.

Septic Tank Regulations*

State Regulation: North Carolina law relating to septic tanks is found primarily in two areas, generally in the state statutes relating to public health found in Chapter 130 of the General Statutes and more specifically in the Ground Absorption Sewage Disposal Systems Act of 1973 (G.S. 130-166,22 et.seq.). Regulatory authority over septic tanks is divided at the state level between the Commission for Health Services in the Department of Human Resources and the Environmental Management Commission within the Department of Natural and Economic Resources, G.S. 130-160 requires that any residence, place of business, or place of public assembly in North Carolina be provided with a sanitary system of sewage disposal consisting of an approved privy, an approved septic tank system, or a connection to a public or community sewage system. The statute provides that septic tank systems of a design capacity up to 3,000 gallons per day which have underground effluent disposal (e.g. that do not discharge directly to surface waters) shall be approved under rules and regulations

promulgated by the Commission for Health Services. Systems larger than 3,000 gallons per day which discharge underground and systems of any size which discharge to the surface waters of the state must comply with the rules and regulations of the Environmental Management Commission.

In an effort to achieve consistency and uniformity in the regulations pertaining to septic tank sewage disposal systems, to reduce jurisdictional confusion or conflict, and to provide more specific criteria for the approval, location, and functioning of septic tank systems, the technical staffs of the Divisions of Health Services and Environmental Management jointly developed new "Rules and Regulations Governing the Disposal of Sewage from any Residence, Place or Business or Place of Public Assembly in North Carolina."

The new Rules and Regulations, having been jointly developed by both environmental and sanitary engineers, are much more thorough and comprehensive than the existing Health Services Commission's regulations (adopted by the State Board of Health in 1958 and twice amended), and hence provide more adequate standards for the regulation of septic tanks. Under the new Regulations the suitability of a site for the use of septic tanks is to be determined based upon the topography, the soil characteristics (texture, structure, depth, restrictive horizons, and drainage), the groundwater elevation, the depth to impervious strata, and percolation tests. The investigation into site suitability is made in accordance with a "Technical Guide" which is incorporated into the Regulations. The new Regulations also contain criteria

for determining the proper location of septic tank systems and specify minimum setback distances from water supplies, streams and canals, shellfish waters, reservoirs, neighboring property lines, and other things affecting or affected by septic tank systems.

The new Rules and Regulations were adopted by the Commission for Health Services in May of 1975, and by the Environmental Management Commission in September of 1975. However, after receiving adverse public comments concerning the new Regulations, the Commission for Health Services on December 10, 1975, postponed indefinitely the effective date of the Regulations, thus preventing their implementation.

III. PUBLIC PARTICIPATION
ACTIVITIES

Land Use Issues

A major land use issue in Pamlico County is a decline in population where the citizens desire more residential, commercial and industrial growth for their county and municipalities.

Population projections for Pamlico County prepared by the North Carolina Department of Administration using past trends, births, deaths, and net migration indicate that Pamlico County will continue to decrease in year-round population. The fact that Pamlico County is decreasing in population is significant, however, not as important as the segment of the population that is being lost. As the young people of Pamlico County migrate to other areas in search of jobs the older segment of the population is left behind. With the removal of potential birth as women of childbearing age move away and the increasing birth rate as the median and average of the population rises, Pamlico County can only expect the downward trend to accelerate. Population trends were made for 5, 10, 25, and 50 years. It is recognized that as projections are made further in the future their reliability is reduced.

The downward population trend for Pamlico County is reversible if the citizens of the County are willing to make certain sacrifices. An all-out effort by both the citizens and the elected officials is necessary in order to improve the cultural, social and economic climate of the County. Pamlico County has characteristics such as climate, water access, woodlands etc. which are attractive to not only Pamlico residents but residents of other areas as well. In order to stimulate growth Pamlico County must be prepared to exploit its attributes to the extent that out-migra-

tion ceases and in-migration begins.

There are also several major obstacles to sustain growth such as poor soils for septic tanks, lack of sufficient access to the County, high water table and a considerable flood plain. It is necessary to recognize that these and other land use issues exist and will be discussed further in this section. However, it is also necessary to recognize that there will be a price to pay for future growth both monetarily and by the sharing of the amenities in Pamlico County. If the citizens and local government are truly willing to make these sacrifices, then the present downward trend in population could be reversed.

The population projections were based on the permanent residents of the County and did not include its summer residents. Therefore, the capability of the land to sustain growth is the most important factor when considering land for future development. Soils are probably the most important natural feature to consider in determining the best use of the land. Soil Characteristics such as percolation rate, shrink swell ratio, load bearing potential, drainage, and slope obviously determine and affect the use and management of land.

Most of the soils in Pamlico County present moderate to severe limitations for most uses. As a result, careful attention must be exercised in selected areas of the County for future development.

Pamlico County has a great deal of fragile land and water resources due to its large amount of shoreline and the lack of

appreciable elevation throughout the County. If these water resources are to be preserved careful attention must be given to the way they are used. The water quality must be monitored, ever watchful of sewage contamination from encroaching development. Present stream classifications must not be allowed to deteriorate. Those areas without the natural capability or where no facilities have been planned to service growth should be preserved.

Pamlico County's economy is based on agriculture, forestry, and fishing. The economy is also stimulated by tourists and vacationers attracted by the natural recreational resources of the County.

Phosphate mining will become an increasingly important land use and economic issue. Mining companies have rights to large amounts of land in the northwestern section of the County. Special attention must be given toward the compatibility of mining with other land uses as well as the environment.

A total of 56 single family dwelling units were built in 1975 opposed to 26 in 1974. Also 160 mobile homes were installed in 1975 as opposed to 74 in 1974. Although population projections are declining, because of a high influx of mobile homes in the County, dwelling units are deteriorating at a higher than normal rate. There was an estimated 900 deteriorating units in the County in 1970. This was 25% of the 3,585 dwelling units in the County. Of the 3,585 dwelling units only 89 are vacant, for sale or for rent. There are no public housing units in the County.

The average cost per dwelling built in 1975 was \$26,286.

This is beyond the means of most residents in the market for a home.

There is a need for lower cost housing units. Funds should be sought to initiate a housing program for lower and moderate income residents. An alternative would be the encouragement of more multi-family dwelling units.

Public water and sewer systems are badly needed services in Pamlico County. The need arises not so much from increasing levels of population but rather from potential health problems due to soil characteristics in relation to septic tanks and the general quality of water.

Bayboro and Oriental are both developing municipal water systems. A private water system operates in Minnesott Beach. These systems are much needed as is a complete system for the County in order to provide a potable source of drinking water.

The Environmental Protection Agency has set aside funds for the planning and construction of a sewerage plant or plants in the Bayboro 201 planning area. However, estuary pollution will still be a problem in waterfront development areas. These areas should be required to have at least package plants or as an alternative must have larger and deeper lots with septic tanks placed farthest away from the water.

There has been discussion of rerouting Highway 17 to emphasize the water and scenic resources of North Carolina.

Pamlico County's main barrier to growth is attributed to its lack of good access to the County especially from the north

and south. This problem could be alleviated with bridges spanning the Neuse River at Minnesott Beach and the Pamlico River at Aurora. Since there has been discussion of rerouting Highway 17 in favor of a more scenic route, the citizens and county officials may acquire outside help in the pursuit of this goal.

The conservation of productive natural resources which include agricultural lands, phosphate deposits, forest lands, wildlife, and marine life, is a major land use issue which will require more than top governmental standards and policies to insure the safety of these resources. The wise use of these resources should be stressed not only to students in the classroom but to all segments of the public for the involvement of all citizens will be necessary if the County's productive natural resources are to be preserved.

Again the preservation of natural environments will involve the co-operation of the general public with the agencies charged with their protection. Unfortunately, the total importance of forests, rivers, sounds, marshes, and estuaries is realized only after their decimation.

Alternatives

Alternatives considered in the development of the goals of Pamlico County would have been the suggestion that Pamlico County not be encouraged to seek a slow growth or even retain present population. This is really about the only realistic alternative the County had. However, it is an alternative not desired by the majority of the residents of Pamlico County.

These nine goals are a product of inputs from the public,

elected and appointed officials, and professional staff and are considered important to improving the living environment of Pamlico County.

Goals and Objectives

The objective of this plan is to provide a management system to provide for the protection of those irreplaceable resources of Pamlico while providing an improved quality of living for all county residents. The goals and objectives discussed herein reflect the desires and needs of the citizens of Pamlico County. Several of the following goals and objectives include areas of concern not specifically addressed in the plan; however, they must be considered and have to be successfully dealt with if the recommendations in this plan are to be achieved.

Employment

Goal: To provide adequate employment opportunities and prevent further out-migration of young adults from Pamlico County.

Objectives: To provide for necessary incentives to retain the young residents of Pamlico County reversing the present out-migration trends through the following policies:

- To encourage employment opportunities by promoting the location of select and compatible industry.
- To provide water and sewer service to specific locations that are desirable for industrial location.
- To promote education and trade skills to enhance employment opportunities.

Road System

Goal: To provide an adequate transportation system in Pamlico County.

Objectives: To encourage the bridging of the Neuse River from a point near Minnesott Beach to a point east of Cherry Point Marine Air Station. Also encouraged is a second bridge across the Pamlico River from Bayview on the north shore and Texas Gulf Sulphur's Plant on the south shore, connecting the access to N.C. 306.

- To work closely with the Department of Transportation to secure the inclusion on the state's seven year plan for the bridging of the Neuse and Pamlico Rivers.
- To enforce the subdivision regulations and insure that adequately designed roads are developed.

Water and Sewer

Goal: To encourage installation of public water supply and sewage disposal systems and to discourage use of individual septic tanks where soils and the water table make such use unfeasible. These areas should be those of high density areas posing the greatest threat to health and environment.

Objectives: To assess the needs of the County and assign priorities to areas most in need of these services.

- To seek financing where possible through grants for installation of the system.

- To provide an equitable method of managing the system either through existing management capabilities or through a system to be established.

Industrial Development

Goal: To encourage selective industries to locate within Pamlico County.

Objectives: To encourage a healthy industrial location program.

- To provide special incentives for industries to locate within the County.
- To provide public services and utilities in areas suitable and desirable for such development.
- To restrict industrial development to only those that would definitely not be detrimental to the environment and quality of life.

Land Use Controls

Goal: To protect Pamlico County from future mixing of incompatible land uses.

Objectives: To define the needs of Pamlico County.

- To establish desired trends that are necessary to meet the needs of Pamlico County.
- To use existing and innovative techniques to establish and strengthen prescribed trends to meet the overall goals of the County.
- To utilize present land use regulation including zoning, subdivision regulations, and building codes when desirable and necessary to promote the general health, safety, and welfare of the citizens.

Recreation

Goal: To increase recreational opportunities for all age groups within the County.

Objectives: To examine, view, and evaluate the existing recreation program and facilities.

- To continue to support the present recreation program.
- To attempt to secure state and federal grants for special recreation projects.
- To make the most practical use of the resources available to Pamlico County, i.e. water resources.
- To review the subdivision regulations and investigate means of increasing the availability of park facilities and open spaces in planned subdivisions.

Agricultural and Forestry Production

Goal: To protect and promote the utilization of desirable agricultural and forestry lands.

Objectives: To identify prime production areas.

- To maintain the productive capabilities of these lands through tax incentives and other programs favoring agricultural production.
- To identify prime agricultural and rural areas and classify them for inclusion in this plan.
- To develop regulations or a system for protecting prime agricultural and forestry areas.

Marine Habitat Protection

Goal: To protect shellfish and other marine habitat from man-instigated pollution.

Objectives: To identify prime productive areas.

- To take those steps necessary to prevent the destruction of the areas, through codes and education.
- To insure that land development is not allowed that would contribute to pollution and contamination of marine resource areas.

Wildlife

Goal: To provide for the proper management of wildlife areas and the preservation of certain species of wildlife within the County.

Objectives: To assess existing wildlife populations and develop management methods.

- To work closely with private landowner and wildlife concerns for the protection of this valuable resource.
- To prevent the encroachment of development into natural prime wildlife areas.

Process to Determine Objectives

The process to determine objectives, policies, and standards consisted of first determining what the needs and desires of the citizens were. This was done by reviewing the questionnaires and utilizing the inputs of the Board of County Commissioners, the Planning Board, and the Advisory Board. After these desires were made known reflective goals were derived. Objectives and policies for obtaining these goals were then established at this point. The existing local standards such as those found in the zoning ordinance, subdivision regulation ordinance, building code, and health department ordinance satisfied the citizens but these standards are being constantly reviewed to maintain a safe, healthy environment.

Methods and Results of Public Participation

The Planning Department for the Neuse River Council of Governments has from the onset of the Coastal Area Management Act attempted to comply with the requirements of the Act and the Coastal Resources Commission. The Coastal Resources Commission has stressed repeatedly the importance of Public Participation in the planning process. In the preparation of the Land Development Plan for Pamlico County the staff of the Neuse River Council of Governments has used every means practical to secure the total involvement of the residents of Pamlico County.

A number of methods were employed in order to attempt to involve the citizens of Pamlico County in the planning of the Land Development Plan. A fifteen person Advisory Board was formed incorporating a cross section of Pamlico County citizens. This

board and the planning staff advised them on matters relating to the desires of the public which should be incorporated into the plan. A special effort has also been made to keep the Pamlico County Planning Board and the Board of County Commissioners informed as to the progress of the plan and to solicit their input.

Another method of involving the public in the plan was the use of public meetings which were held throughout the County. These meetings provided direct contact with the public and allowed for direct exchange of ideas.

The local newspaper, television, and radio stations which serve the County were relied upon a great deal to advertise the Coastal Area Management Act and the progress that was being made in developing the required Land Development Plan. A questionnaire was published in the local papers and distributed throughout the County. The county schools also were used as a method of distribution. A copy of this questionnaire can be found on page 66. Input was received through the use of "Drop Boxes" distributed to various locations in the County. The method of using the local news media provided some input; however, possibly more important, they provided information and gave the citizens the opportunity to voice their opinions.

The methods of providing public information and obtaining public input for the plan are felt to be the best methods available given the time and money constraints and the distribution of population in Pamlico County.

The degree of public participation in the formulation of the

land use plan was quite good considering a present population of approximately 9,500.

The following is a copy of the questionnaire with the tallied responses under each question and also a verbal summary of the questionnaire. A total of four hundred fourteen questionnaires were returned.

LAND DEVELOPMENT POLICIES AND GOALS

1. Is your home located on a lot larger than 20,000 square feet?
(Approximately $\frac{1}{2}$ acre)

231 Yes 93 No

2. Do you have your own well?

278 Yes 55 No

3. Do you have your own individual septic tank?

286 Yes 48 No

4. Are you satisfied with the quality of water?

306 Yes 102 No

5. Have you had any problems with your septic tank?

89 Yes 278 No

6. Are you generally satisfied with the way your neighborhood has developed?

252 Yes 123 No

7. Do you own commercial or industrial property in this township?

143 Yes 268 No

8. Do you feel that different types of land uses such as residential, commercial, and industrial should be 193 (A) separated as much as possible or 138 (B) allowed to develop unrestricted?

9. Do you feel your neighborhood has adequate recreational facilities?

145 Yes 247 No

If not, what type would you like to see developed?

10. Do you want additional residential growth in your neighborhood?

239 Yes 135 No

Industrial growth? 197 Yes 143 No

Commercial growth? 193 Yes 132 No

11. Are the roads and streets adequate in your neighborhood?

166 Yes 140 No

If not, what are the major problems?

12. Do you feel the county should strive to increase the health programs and services?

254 Yes 39 No

Educational programs and services?

266 Yes 22 No

13. Do you like your county and neighborhood as it is now?

215 Yes 154 No

• What do you want changed?

What should be protected or maintained?

14. Do you feel air pollution is a problem in the area?

49 Yes 242 No

Water-estaurine pollution? 88 Yes 98 No

15. Are you in favor of protecting historical areas, wildlife areas, and similiar ecological systems such as marshlands and shellfish areas?

318 Yes 40 No

16. Would you rather 128 (A) limit growth or 172 (B) promote the development of additional services such as public water and sewer systems in areas where development could not take place without such services?

17. Additional comments

QUESTIONNAIRE SUMMARY

Generally citizens of all townships are satisfied with septic tank performance and water quality. Township III residents are less satisfied, however, with their septic tanks and particularly water than the rest.

Citizens of all townships are generally satisfied with the way their neighborhood and county has developed with the exception of Township III residents. Additional comments from these residents were that they desired more selective industry, better streets, and water and sewer facilities.

Residents throughout the county feel their neighborhoods are lacking recreational facilities. Townships III and V residents are more overwhelmingly in favor of industrial growth than the other townships. This is not surprising because these two townships comprise the largest communities and have the largest population densities. All townships are in favor of greater residential and commercial growth. They would rather install community facilities (i.e. water and sewer systems) in areas where development couldn't take place without such services than limit growth.

Pamlico County's inhabitants are deeply aware of their natural resources and are strongly in favor of protecting environmentally sensitive, historical, and wildlife areas.

IV. CONSTRAINTS

Land Potential

Physical Limitations

Man-Made Hazard Area

There are two man-made hazard areas in Pamlico County. These two areas, Pamlico Point and Maw Point are bombing target areas for the U.S. Marine Corps Air Station at Cherry Point in Craven County.

Natural Hazard Areas

Pamlico has two major categories of hazard areas within the County. These two categories are areas of excessive erosion and coastal flood plains. Although these are the only two categories of hazard areas found in Pamlico County they are very extensive and effect a major part of the County.

Excessive Erosion Areas - These areas are defined as the land area extending from the mainland-water interface, landward to a prediction line indicating the probable shoreline 100 years hence. Development within these areas are subject to the damaging process of erosion unless special development standards and preventive measures are employed. The objective of these special development standards will be to insure that development occurring within the 100-year erodibility line is compatible with the dynamic nature of the erodible lands thus minimizing the likelihood of significant loss of property.

Pamlico County has 348 miles of bay and estuary shoreline and no ocean shoreline. The 348 miles is further divided into beach shoreline with 51 miles and non-beach shoreline with 297

miles. There are 30 miles of critical and 24 miles of non-critical erosive shorelines. The remaining 294 miles is classified as non-eroding shoreline.

The vast majority of the 348 miles of shoreline is undeveloped. There are only two miles classified as public recreation, ten miles of private recreation, 24 miles of non-recreational development and the remaining 312 miles as undeveloped.

The areas subject to erosion in Pamlico County are limited to the shoreline of the Neuse River and portions of creeks and streams extending southeast from Kennels Beach around Wilkinson Point then northeast to a point approximately halfway between Janiero and Oriental, then continuing from a point just west of Coddle Creek to a point just west of Broad Creek. The positions of the shoreline from Wilkinson Point northeast are generally low and also subject to flooding while the shoreline southwest of the Wilkinson Point area are high banked shorelines dropping off sharply where the land meets the water.

Coastal Flood Plains - Coastal flood plains are defined as the land areas adjacent to coastal sounds, estuaries or the ocean which are prone to flooding from storms with an annual probability of one percent or greater (100 year storm). These areas are analogous to the 100 year flood plain on a river. They are subject to wave action as well as flooding during severe storms or hurricanes. These are lands where uncontrolled, incompatible, or improperly designed buildings, structures, facilities, and development can unreasonable endanger life and property. Generally

these areas are not subject to severe erosion or dynamic action unless they lie directly adjacent to an estuary or the ocean. The objective of establishing policies in these areas is to insure that all buildings, structures, facilities, and developments are properly designed and built to maintain their stability, integrity, and safety in the event of flood surge from a 100 year storm.

Pamlico County has a very large portion of its land area classified as subject to coastal flooding. Although the detailed flood prone maps for Pamlico County are not available, as yet, preliminary information indicates that all lands lying below 14 feet mean sea level are subject to flooding from a 100 year frequency flood. The majority of the land lying east of Highway 306 which marks the extent of a previous seashore lies below 14 feet mean sea level and is subject to inundation during periods of flooding. There is a minor area of flooding west of this ancient duneline along upper Broad Creek and Goose Creek. This area extends from the Neuse River northward almost to Highway 55 and is subject to coastal flooding.

It is evident that an extensive amount of land area in Pamlico County must be subject to some type of standards which will reduce the risk to life and property damage in these hazard area. This would not eliminate development or use of these areas; however, it would require that the potential for danger is recognized and appropriate steps be taken to minimize possible damage resulting from either coastal flooding or erosional activities.

Soils¹

Soils are probably the most important natural feature to consider in determining the best use of land. Soil characteristics such as percolation rate, shrink-swell ratio, load-bearing potential, drainage, and slope obviously determine and affect the use and management of land. The Soil Conservation Service has grouped the soils in the County into seven soil associations. The soils that constitute an association are similar in origin, color, and structure. However, they may differ slightly in drainage, slope and other characteristics that may affect soil management.

Each soil's association normally consists of one or more major soils and at least one minor soil, and is named for the major soils in the order of their dominance in the association.

Soil interpretations based on the generalized soils' map are shown in the accompanying table. The table gives the suitability of the principal soils for general agricultural and forest uses. In addition, it also indicates the limitations of soils when used for non-farm purposes, such as campsites, picnic areas, intensive play areas, dwellings with septic tank absorption fields or sewerage systems, and foundation for light industries and roads. The table reveals that most of the soils in Pamlico County present moderate to severe limitations for most non-farm uses. As a result, careful attention must be exercised in selecting areas of the County for future development.

A detailed description of the seven soil associations in Pamlico County is as follows:

¹Information provided by the Soil Conservation Service, U.S. Department of Agriculture, New Bern, North Carolina

1. Lenoir-Craven Association - This association consists of smooth, nearly level divides, unbecoming slightly rounded near drainageway. The areas of this association are dissected almost down the middle of the areas by a fairly deep drainageway with many shallow tributary drainages. The drainageways are narrow and have short side slopes ranging from gently to strongly sloping. This association makes up about 17 percent of the County. There are ten delineations in the County. The largest ones are around Olympie, between Scott's Store and Reelsboro, between Arapahoe and Broad Creek and the largest delineation is along the Neuse River.

Lenoir soils make up about 40 percent of this association. They are somewhat poorly drained. The soils have dark gray very fine sandy loam surface and yellowish brown to light yellowish brown, very firm clay subsoils mottled with gray.

Craven soils make up about 30 percent of this association. They are moderately well drained. The soils have grayish brown very fine sand loam surfaces and yellowish brown, very firm clay subsoils mottled with gray in the lower subsoil.

The remainder of this association consists chiefly of soils of the Norfolk, Goldsboro, Lynchburg, Rains, Lumbee, Kalmis, Johns, Duplin, Dunbar, Coxville, Bladen, Leaf and Bibb series.

About half of this association is cultivated and some is pastured. The chief crops are corn, soybeans, tobacco and small grain. Wetness is the chief limitation to use and management of soils of this association but erosion is also a problem on the

sloping areas near the drainageways. Bank erosion may be a problem on the Neuse River during hurricane tides. These soils are easily tilled except for the eroded places and crops respond well to recommended applications of lime and fertilizer. These soils have slow permeability and have only fair response to subsurface drainage.

Slow to very slow percolation and a high-water table result in moderate to severe limitations for use of the major soils for urban development. Small areas of some minor soils have only slight to moderate limitation. The minor soils having more permeability are more desirable for urban uses and make better homesites than Lenoir-Craven soils.

2. Leaf-Bayboro Association - This association consists of broad smooth flats in interstream areas. The areas of this association are dissected by only a few shallow drainageways. The association makes up about 24 percent of the County. The delineations are large and found in all parts of the County.

Leaf soils make up about 40 percent of this association. They are poorly drained. The soils have dark gray, very fine sandy loam surfaces. The clay subsoils are gray mottled with brownish yellow and are very firm, very sticky and very plastic when wet.

Bayboro soils make up about 30 percent of this association. They are very poorly drained. These soils have black to very dark gray and very fine sandy loam to loam surfaces; and gray, firm, sticky and plastic when wet, clay subsoils.

The remainder of this association consists chiefly of soils of the Lenoir, Craven, Hyde, Nahunta, Dunbar, Coxville and Bladen series.

About two-thirds of this association is in woodland. The cleared areas are used for corn, soybeans, small grain and pasture. Wetness is the chief limitation to the use and management of the major soils of this association. A system of surface and subsurface drainage is required before Leaf and Bayboro soils can be cultivated and pastured. These soils are fairly easily tilled and crops respond well to recommended applications of lime and fertilizer. However, they have slow permeability and have only fair response to subsurface drainage.

The slow to very slow percolation and high-water table are severe limitations for use of the major soils for urban development. Areas of some minor soils scattered in this association have only moderate limitations to urban uses and are more desirable places for building sites than the Leaf or Bayboro soils.

3. Portsmouth-Torhunta Association - This association is of broad, smooth flats on wide interstream areas. The areas of this group have little natural drainage. The association makes up about 23 percent of the County and there are 12 delineations of it. The areas are small and scattered over the west and north-east parts and a large area is in the central part of the County.

Portsmouth soils make up about 40 percent of this association. They are very poorly drained. The soils have black to very dark gray loam to sandy loam surfaces, and gray, friable, sandy clay loam subsoils.

Torhunta soils make up about 20 percent of this association. They are very poorly drained. The soils have black to very dark gray loam to sandy loam surfaces, and gray, friable, sandy loam subsoils.

The remainder of this association consists chiefly of soils of the Rains, Weston, Lumbee, Lynchburg, Johns, Dragston, Coxville, Bayboro, Rutlege, Osier, Ponzer and Pamlico series.

About three-fourths of this association is in woodland. The few cleared areas are used for corn, soybeans and pasture. Wetness is the chief limitation to use and management of the soils in this association. The Portsmouth and Torhunta soils respond well to drainage. When artificially drained, the soils are easily tilled and crops respond well to recommended applications of lime and fertilizer. A system of surface and subsurface drainage is required before these soils can be cultivated and pastured.

The high-water table causes the major soils of this association to have severe limitations for urban uses. Some minor soils in this association have moderate limitations for urban uses and are more desirable for building sites than the major soils, Portsmouth and Torhunta.

4. Leon-Lynn Haven Association - This association consists of broad flats and low ridges on wide interstream areas. The areas of this association are only moderately dissected by shallow drainageways. The association makes up about eight percent of the County. There are three delineations of this association. They are in the western part of the County.

Leon soils make up about 40 percent of this association. They are somewhat poorly drained. The soils have dark grayish sandy surfaces and dark brownish, cemented, sandy subsoils.

The remainder of this association consists chiefly of soils of the Rutlege, Osier, Chipley, Kenansville, Dragston, Weston, Torhunata, Lakeland and Blanton series.

About three-fourths of this association is in woodland. The cleared areas are used for blueberry crops. Wetness is the chief limitation to use and management of this association. Also, these soils have low natural fertility. The soils respond well to drainage, but caving in of sides of ditches makes good drainage difficult to maintain. These soils are easily tilled and crops respond fairly well to recommended applications of lime and fertilizer. Leon and Lynn Haven soils have poor response to management because of the sand texture and hardpan subsoil. A system of surface and subsurface drainage is required before the major soils of this association can be cultivated and pastured.

The wet condition of the major soils of this association is a moderate to severe limitation for urban uses. This association has minor soil inclusions that are small in areas, but have only slight limitations to urban uses.

5. Kenansville-Dragston Association - This soil association consists of broad, smooth, nearly level to slightly convex divides becoming rounded near drainageways. The areas of this association make up about nine percent of the County. There are 17 delineations of this association on the west side and central part of the County.

Kenansville soils make up about 30 percent of this association. They are well drained. The surface soil is grayish brown loamy sand 20 to 40 inches thick. Subsoil is thin and is light yellowish brown to strong brown, friable, sandy loam, overlying coarse layers of loamy sand.

Dragston soils make up about 20 percent of this association. They are somewhat poorly drained. The surface soil is dark gray loamy sand. Subsoil is pale brown to yellowish brown, friable, sandy loam mottled with gray. The gray color increases in the lower subsoil.

The remainder of this association consists chiefly of soils of the Leon, Weston, Torhunta, Wagram, Lakeland, Chipley and Lynn Haven series.

About one-half of this association is cultivated and a small acreage is pastured. The chief crops are corn, tobacco, soybeans, small grain and truck crops. The soils are easily tilled and crops respond fairly well to recommended applications of lime and fertilizer. The major soils of this association have moderate limitations of low natural fertility. The Kenansville soils have a moderate hazard of wind erosion in large open areas and moderate droughtiness. Dragston soils have a moderate limitation due to wetness. Conservation practices should be used that will combat these hazards. A system of surface and subsurface drainage is desirable on Dragston soils for crops needing a well drained condition.

The Kenansville soils have none to slight limitations for

urban uses, except when used for unsurfaced roads. The loose sandy surface soils have moderate limitations for intensive traffic. Dragston soils have a seasonal high-water table that is a moderate limitation for use of the soils for septic tank filter fields.

6. Ponzer-Pamlico Muck Association - This association consists of broad, smooth, flats at the heads of intermittent streams (posocins). The areas of this group have very little natural drainage. The association makes up about 10 percent of the County. There are four areas. Three areas are along the northern boundary of the County and one is in the central part.

Ponzer and Pamlico soils are the major soils and make up about 75 percent of this association area. They are very poorly drained. The soils have black to very dark grayish brown muck surface layers, 12 to 50 inches thick. The muck is less than one-third fibers and overlies dark gray to dark grayish brown, friable, mineral soils. Ponzer has a loamy layer underlying the muck layers and Pamlico has a sandy layer.

The remainder of this association consists chiefly of deeper muck and Portsmouth, Hyde, Torhunta, Bayboro and Leon soils.

Nearly all of this association is in woods or burned over brushland. The few cleared areas are used for corn, soybeans and pasture. The ponzer and Pamlico soils have severe limitations for nearly all agricultural uses. Chief limitations are fertility problems, severe wetness and difficulty of drainage, extremely acid, and susceptible to burning when drained.

Ponzer and Pamlico soils have severe limitations for all ur-

ban uses because of the high-water table and poor foundation for building streets and roads.

7. Tidal Marsh Association - This association consists of smooth flatland bordering large bodies of water. The land areas have elevations between those reached by high tides and low tides.

The areas of this group have only a minimum of surface drainage during low tides. The association makes up about 10 percent of the County. The two largest areas are on the northeast and east side bordering Pamlico Sound, and four small delineations are on the southwest side of the County bordering Neuse River.

Tidal marshland makes up almost all of this association. The land is very poorly drained and subject to inundation by tide water. Tidal marsh soil consists of layers of gray silt loam and very fine sandy loam and dark brown muck.

The remainder of this group consists chiefly of soils of the Coastal Beach, Torhunta, Portsmouth and Bayboro series.

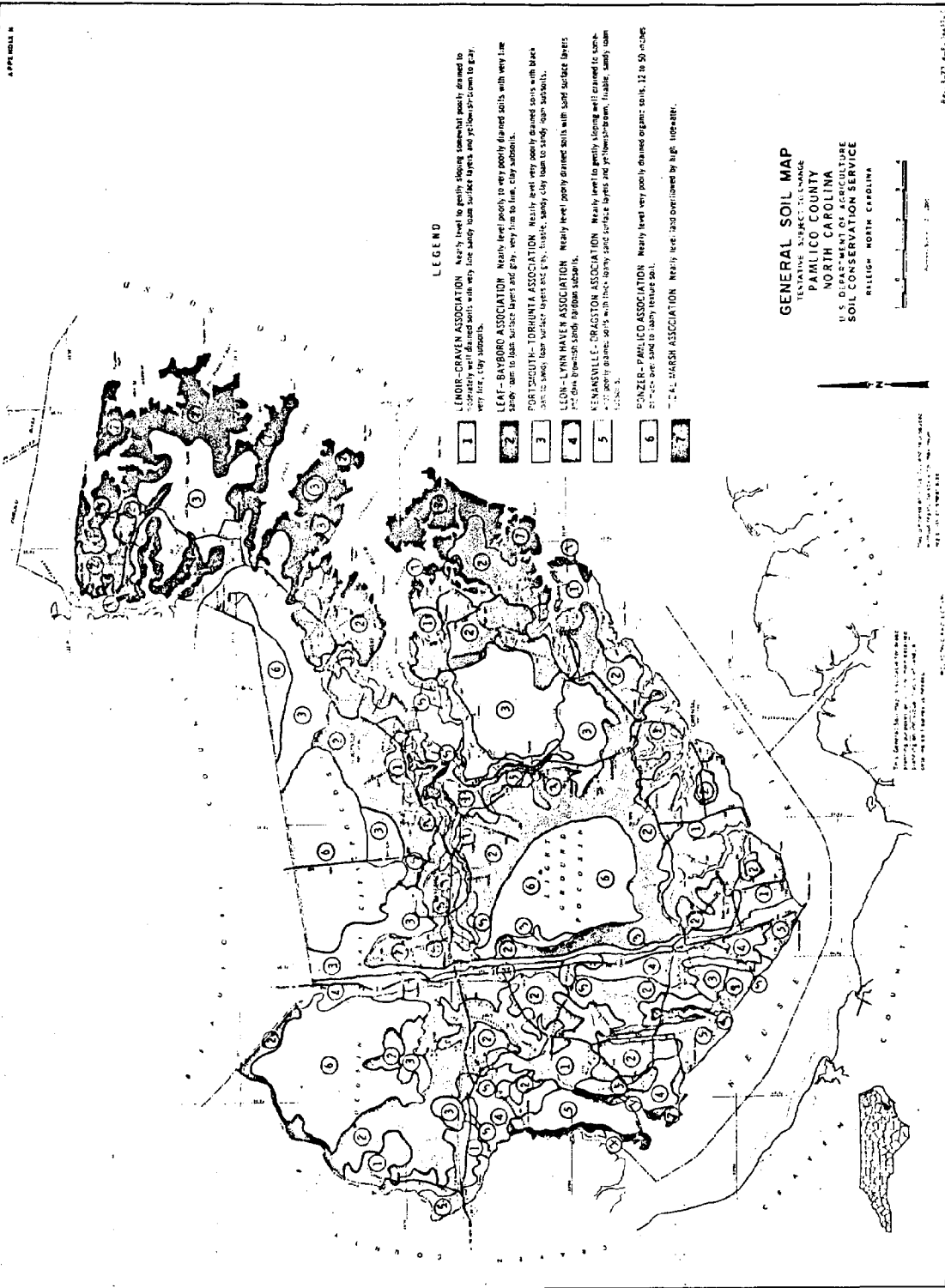
Soils of these types have less than 10 percent tree cover and no cultivated areas or important pastured areas. About 85 percent of the acreage grows salt tolerant plants such as rushes, sedge, and beach grasses. The soils of this association have severe limitations are (1) wetness and frequent flooding by high tides, (2) elevation is too low for subsurface drainage outlets and (3) alkaline soil reaction and soil water.

Source of Water Supply

Pamlico County is underlaid by about 3,500 feet of sediment ranging in age from cretaceous to recent. These sediments that are

TABLE 23
Soil Interpretations
Chatham County, N. C.

Soil associations		Soils % in Assoc.		Drainages with		LIMITATIONS FOR				Suitability for	
				Surface Soils	Specific Tank Filter Fields	Recreation	Intensive Play Areas	Light Industrial/ Sewage	Roads and Streets ^{2/}	General Agriculture	Woods
1.	Lenoir-Craven (16% of county)	Mod(Mt. Sh-Sw)	Sav(Perc. Ut)	Sav(Ut. Trsf) Mod(Trsf. Tr)	Sav(Ut. Trsf) Mod(Trsf. Tr)	Sav(Ut. Trsf) Mod(Trsf. Tr)	Sav(Ut. Trsf) Mod(Trsf. Tr)	Sav(Ut. Trsf) Mod(Trsf. Tr)	Sav(Ut. Trsf) Mod(Trsf. Tr)	Sav(Ut. Trsf) Mod(Trsf. Tr)	Good
2.	Leaf-Nashboro (24% of county)	Sav(Mt. Sh-Sw)	Sav(Perc. Ut)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Good
3.	Portsmouth-Tenaha (40% of county)	Sav(Mt. Sh-Sw)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Good
4.	Leaf-Nashboro (8% of county)	Sav(Mt. Sh-Sw)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Good
5.	Kennettville-Dragoon (10% of county)	Sav(Mt. Sh-Sw)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Good
6.	Porter-Panola (10% of county)	Sav(Mt. Sh-Sw)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Good
7.	Leaf-Nashboro (10% of county)	Sav(Mt. Sh-Sw)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Sav(Ut. Trsf)	Good



eocene age and younger will be considered here due to the belief that older formations contain relatively highly mineralized water and not considered as current sources of ground water supply.

The Castle Hayne limestone is a highly productive artesian aquifer in Pamlico County and the principle source of water supply. This aquifer ranges from 200 to 400 feet in thickness and is composed of indurated shell limestone, domestic shell limestone, and beds of calcareous sand. Domestic wells, penetrating only a few feet of the aquifer, yield 20 to 50 fallons per minute, and large diameter commercial wells yield several hundred gallons per minute with very little drawdown.

The Yorktown aquifer overlying the Castel Hayne contains interbedded sands, marls, and clays. The sands and marls yield moderate quantities of water and small diameter wells that are generally adequate for domestic use. The shell beds found at various horizons in the aquifer provide most of the water withdrawn from the aquifer.

The non-artesian aquifer is most extensively used as a source of water supply in the western part of the County. The surficial sands reach their greatest thickness in this area of higher elevation, and provide an adequate source of supply for shallow dug or driven domestic wells. This aquifer is used less extensively as it changes in lithology to include a greater percentage of clay eacy of the beach ridge on the Pamlico terrace.

Water Quality - The chemical quality of water from the Castle Hayne aquifer is very similar to that of the overlying Yorktown

aquifer. Both contain water that is characteristically hard, have a PH in the range of 7.2 to 8.2 and in which the iron content ranges from .06 to .05 parts per million. The chloride content in water from both the Castle Hayne and the Yorktown aquifer is low, falling generally in the range of 10 to 40 parts per million.

At depths exceeding 300 feet, water from the Castle Hayne aquifer contained very small amounts of chloride. The relatively low chloride content of the water at this depth in Pamlico County probably reflects the close proximity to the recharge area of the aquifer, the high permeability of the aquifer and the height of the piezometric surface about sea level, all of which would contribute to the flushing of residual seawater from the aquifer or retarded seawater encroachment.

Higher concentrations of chloride occur in the water of the Yorktown in areas adjacent to bodies of brackish or saline water. Water from the Castle Hayne aquifer, in the eastern part of the County, emits a strong odor of hydrogen sulfide.

Water from the shallow, non-artesian aquifer is generally soft and free of odor. It commonly contains up to three parts per million iron and is usually slightly acid and corrosive. The water in this aquifer was found to be free of chloride contamination in the inland areas. Along the coast, however, where the aquifer is hydraulically connected with the brackish water of the sound and rivers and subject to inundation by high storm tides, chloride concentrations are higher.

Water Use - Presently all water supplies in Pamlico County

are obtained from wells. There are no existing municipal water supplies in the County, however, both Bayboro and Oriental are now developing water systems. These systems are much needed as is a complete system for the County in order to provide a potable source of drinking water.

Private System at Minnesott Beach - The Town of Minnesott Beach has within its corporate limits a private water system serving a newly developing portion of the Town. There is an opportunity for the Town to purchase the existing private system and expand it so as to serve the remaining residents of the Town. The existing water system consists of a 75,000 gallon elevated storage tank, 18,600 feet of 8", 6" and 3" diameter mains and valves. Also included are 18 fire hydrants, chlorination equipment, and a jet pump with a capacity of 240 gallons per minute.

The proposed expansion would include another well and site, water softening equipment and housing, and nine fire hydrants. Extension of mains would include 3,200 feet of 8" mains, 3,800 feet of 6" mains, and 60 service lines.

Topography and General Elevation

Pamlico County is typical of most eastern North Carolina counties in that the topography for the most part is flat and generally lacks much elevation. The land east of Highway 306, which marks the shoreline of the historic Pamlico Sea, is almost totally subject to inundation by a 100 year frequency flood. This area represents almost two-thirds of the County with riverine flooding occurring to some extent west of this line. The County

also has the problem of three major areas of pocosin or upland swamps in the north, northwest and center of the County. Although these areas have elevations in some cases up to 43 feet mean sea level these areas are wet and swampy most of the year.

There is only one minor portion of the County which has any appreciable slope. This area is located in the southern and western portions of Township Five and in this southeastern portion of Township One. This area ranges in elevation from a few feet up to 42 feet just west of Arapahoe. This area is somewhat unique for area along the Neuse in that the banks drop off in a steep slope from around 20 feet down to the water line. This area offers a somewhat unique terrain for a coastal county as well as having a high potential for development due to its elevation and the proximity to the Neuse River.

In contrast to the aforementioned area the eastern portion of Pamlico County is characterized by flat marshlands with very slight elevations. These areas are subject to continuous flooding and due to their general lack of elevation are only suitable natural areas for vegetation and land and aquatic animals.

Pamlico County's general lack of appreciable elevation and the extensive amount of marshland and upland swamps make Pamlico County typical among coastal eastern North Carolina counties.

For the most part the lack of sufficient slope is the major problem in Pamlico County due to the prohibitive effect on natural drainage.

Only a small portion of the County is well drained. These well-drained areas are mostly confined to areas that border streams, particularly along the Neuse River where the slope of the land is most pronounced. Most of the County is artificially drained by small, open ditches which flow into canals or into natural outlets. For the most part, artificial drainage has been tied to either agricultural or health department programs for mosquito control.

Poor drainage is an inhibiting factor in the development potential of Pamlico County. Natural drainage is inadequate due to the level characteristics of the terrain in certain areas of the County. These areas should be utilized for forestry, wildlife, and recreation purposes.

Fragile Areas

Coastal Wetlands

Coastal wetlands are defined as "any salt marsh or other marsh subject to regular or occasional flooding by tides, including wind tides (whether or not the tide waters reach the marshland area through natural or artificial water courses) provided this shall not include hurricane or tropical storm tides. Salt marshland or other marsh shall be those areas upon which grow some, but not necessarily all, of the following salt marsh and marsh plant species: Smooth or Saltwater Cordgrass (*Spartina alterniflora*); Black Needlerush (*Juncus roemerianus*); Glasswort (*Salicornia* spp.); Bulrush (*Scirpus* spp.); Saw Grass (*Cidurm jamaicense*); Cut Tail (*Typha* spp); Salt-Meadow Grass (*Spartina patens*); and Salt Reed Grass (*Spartina cynosuroides*)."

Pamlico has a great deal of land area along creeks, rivers and the sound which are considered as marshlands and therefore will be designated as Areas of Environmental Concern. Although marshland types will be divided into two types and discussed separately the designation of marshlands will be as a single category since man induced activities allowed in these areas will be the same.

Altogether, Pamlico County has approximately 60,019 acres of both low tidal and upland marshland. The majority of these marshlands are located in northeastern Pamlico County adjacent to the Pamlico Sound although marshland is found along most creeks and rivers in the County.

Low Tidal Marshland

Low tidal marshland consists primarily of *Spartina alterniflora* and usually subject to inundation by the normal rise and fall of lunar tides. They serve as a critical component in the coastal ecosystem. The marsh is the basis for the high net yield system of the estuary through the production of organic detritus which is the primary input source for the food chain of the entire estuarine system. The roots and rhizomes of the *Spartina alterniflora* serve as waterfowl food and the stems as wildlife nesting material. Low tidal marsh also serves as the first line of defense in retarding shoreline erosion. The plant stems and leaves tend to dissipate wave action while the vast network of roots resists soil erosion. Marshes of this type operate additionally as traps for sediment originating from upland run-off thus reducing siltation of the estuarine bottoms and consequent detriment to marine organisms.

Upland Marshland

Upland marshlands are not subject to tidal inundations and contain a variety of marshland vegetation. This marshland type also contributes to the detritus supply necessary to the highly productive estuarine system. The higher marsh types offer quality wildlife and waterfowl habitat depending on the biological and physical conditions of the marsh. The vegetative diversity in the higher marshes usually supports a greater diversity of wildlife types than the limited habitat of the low tidal marsh. This marshland type also serves as an important deterrent to shoreline erosion especially in those marshes containing heavily rooted species. The dense system of rhizomes and roots of *Juncus*

roemerianus are highly resistant to erosion. The higher marshes are effective sediment traps.

Marshlands paly an important role in the coastal environment. In most cases those marshlands do not possess attractiveness for development. It is important to the overall coastal environment if these areas are retained in their natural state and allowed to perform their natural functions.

Outer Bank Sand Dunes

Outer Bank sand dunes do not exist in Pamlico County. Ocean beaches and shorelines do not exist in Pamlico County as no portion of the County is contingent with the ocean.

Estuarine Waters

Estuarine waters are extensive in Pamlico County. These areas must be safeguarded to perpetuate their biological, economic and aesthetic values. Estuarine waters are defined in G.S. 113-229 (n) (2) as, "all the water of the Atlantic Ocean within the boundary of North Carolina and all the waters of the Bays, sounds, rivers, and tributaries thereto seaward of the dividing line between coastal fishing waters and inland fishing waters, as set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Conservation and Development filed with the Secretary of State entitled 'Boundary Lines, North Carolina Commercial Fishing-Inland Fishing Waters, revised March 1, 1965,' or as it may be subsequently revised by the Legislature."

Therefore, those waters classified as estuarine as opposed to inland waters in Pamlico County are as follows:

Pamlico River (1).Inland Waters above, Estuarine
Waters below N. & S RR bridge
at Washington

Lower Goose Creek (2). . . .Inland Waters above, Estuarine
waters below a line from Pasture
Point to Long Neck Point.

Dixons Creek (3)Estuarine Waters

Patons Creek (4)Estuarine Waters

Wilson Creek (5)Estuarine Waters

Eastham Creek (6).Estuarine Waters - Waters below
Watson Fishhouse

Upper Spring Creek (7) . . .Inland Waters above, Estuarine
Waters below N.C. 304 Bridge

Oyster Creek (8)Estuarine Waters

Clark Creek (9).Estuarine Waters

Middle Prong (10).Estuarine Waters

James Creek (11)Estuarine Waters

Pamlico Sound (12)Estuarine Waters

Porpoise Creek (13).Estuarine Waters

Drum Creek (14).Estuarine Waters

Bay Creek (15)Estuarine Waters

Gale Creek (16).Estuarine Waters

Chadwick Creek (17).Estuarine Waters

Bear Creek (18).Estuarine Waters

Vandemere Creek (19)Estuarine Waters below N.C. 304
Bridge, Inland Waters above

Long Creek (20).Inland Waters

Smith Creek (21).Estuarine Waters

Chapel Creek (22).Inland Waters above, Estuarine
Waters below N.C. 304 Bridge

Raccoon Creek (23)Estuarine Waters

Neals Creek (24)Estuarine Waters

Trent Creek (25). Inland Water above, Estuarine
 Waters below Thomas Creek
 Masons Creek (26) Estuarine Waters
 Moore Creek (27) Estuarine Waters
 Rices Creek (28). Estuarine Waters
 Ball Creek (29) Estuarine Waters
 Cabin Creek (30). Estuarine Waters
 Riggs Creek (31). Estuarine Waters
 Spring Creek (32) Estuarine Waters
 Greens Creek (33) Estuarine Waters
 Neuse River (34). Inland Waters above, Estuarine
 Waters below Pitch Kettle
 Swan Creek (35) Estuarine Waters
 Lower Broad Creek (36). . . Inland Waters above, Estuarine
 Waters below Old Mill Site
 Greens Creek (37) Estuarine Waters
 Pittman Creek (38). Estuarine Waters
 Burton Creek (39) Estuarine Waters
 Brown Creek (40). Estuarine Waters
 Spices Creek (41) Estuarine Waters
 Gideon Creek (42) Estuarine Waters
 Tar Creek (43). Estuarine Waters
 Parris Creek (44) Estuarine Waters
 Orchard Creek (45). Estuarine Waters
 Pierce Creek (46) Estuarine Waters
 Whitaker Creek (47) Estuarine Waters
 Smith Creek (48). Inland Waters above, Estuarine
 Waters below a point one mile above
 mouth
 Greens Creek (49) Inland Waters above, Estuarine
 Waters below a point one mile above
 mouth

Kershaw Creek (50) Inland Waters above, Estuarine
 Waters below a point one mile above
 mouth
 Dawson Creek (51) Inland Waters above, Estuarine
 Waters below a point three-quarters
 mile above mouth
 Tarkiln Creek (52) Inland Waters
 Gatlin Creek (53) Inland Waters
 Little Creek (54) Inland Waters
 Mill Creek (55) Inland Waters
 Beard Creek (56) Inland Waters above, Estuarine
 Waters below a point three-quarters
 mile above north
 Lower Duck Creek (57) Inland Waters
 Goose Creek (58) Inland Waters above, Estuarine
 Waters below the Narrows
 Upper Broad Creek (59) Inland Waters above, Estuarine
 Waters below Flatty Creek
 Flatty Creek (60) Inland Waters

Public Trust Waters

Public trust waters are defined as ocean and estuarine waters plus coastal streams, tributaries and lakes in which the public may have rights of navigation, access, or other public trust rights. The rights to these waters include both navigation and recreation. These waters are also significant in that they support valuable commercial and sport fisheries and have aesthetic value.

Pamlico County has a great deal of water area which would be categorized as public trust waters. The County has 348 miles of bay and estuarine shoreline not to mention the numerous navigable streams and creeks within the County. There are 29 bays, rivers, creeks and streams which make up the public trust waters in Pamlico County. These waters are generally tidal and contain warm water. The use is generally restricted to fishing and boating except in the rivers, bays, and sounds. The recreational use for sportfishing or boating in these waters is very important to the County and area. Commercial fishing in the bays and rivers is also very important while the creeks and streams provide spawning for both shell and finfish.

Stream Classification System

A state stream classification system has been established for the conservation of the states water resources. The standards of water purity have been "designed to protect human health, to prevent injury to plant and animal life, to prevent damage to public and private property, to insure the continued enjoyment of the natural attractions of the state, to encourage the expansion of employment opportunities, to provide a permanent foundation for

healthy industrial development and to secure for the people of North Carolina, now and in the future, the beneficial uses of these great natural resources.

(Article 21, General Statutes of North Carolina - excerpt.)
For more detailed information consult the Board of Water and Air Resources, North Carolina Department of Natural and Economic Resources and their booklet "Rules, Regulations, Classifications and Water Quality Standards Applicable to the Surface Water of North Carolina."

A brief explanation of the best usage as adapted by the State Stream Sanitation Committee on November 19, 1953, and filed in the Office of the Secretary of State of North Carolina for which the waters in each class must be protected is given as follows:

Fresh Waters

- | | |
|------------|--|
| Class A-I | -Suitable as source of water supply for drinking, culinary, or processing purposes after treatment by approved disinfection only, and any other usage requiring waters of lower quality. |
| Class A-II | -Suitable as a source of water supply for drinking, culinary, or food processing purposes after approved treatment equal to coagulation, sedimentation, filtration, and disinfection, etc., and any other usage requiring waters of lower quality. |
| Class B | -Suitable for outdoor bathing and any other usage requiring waters of lower quality. |
| Class C | -Suitable for fishing and fish propagation, and any other usage requiring waters of lower quality. |
| Class D | -Suitable for agriculture and for industrial cooling and process water after treatment by the user as may be required under each particular circumstance. |

Tidal Salt Water

- | | |
|----------|--|
| Class SA | -Suitable for shellfishing for market purposes and any other usage requiring water of lower quality. |
| Class SB | -Suitable for bathing and any other usage except shellfishing for market purposes. |
| Class SC | -Suitable for fishing and any other usage except bathing and shellfishing for market purposes. |

The following is an inventory of streams found in Pamlico Co. included in the inventory is their location, size, (length, & width), discription (classification) and present use.

TABLE 24

INVENTORY OF STREAMS

Name of Water	Location	Size 1/ 36 miles/3 miles	Description of Water 2/3/ Tidal. Warm water. Classified SA.	Present Use Woodland, cropland, pasture, marsh.
Panlico River	Inland continuation of Panlico Sound. Access at Oyster Creek.	36 miles/3 miles	Tidal. Warm water. Classified SA.	Woodland, cropland, pasture, marsh.
Goose Creek	Tributary to Pamlico River at river mile 8. Access at SR-304; at Intercoastal Waterway Bridge.	4 miles/1.2 miles	Tidal. Warm water. Classified SA.	Woodland, cropland, marsh.
Eastern (Eastham) Creek 110	Tributary to Goose Creek at river mile 4. Access at end of SR-1236.	3 miles/200'	Tidal. Warm water. Classified SA.	Woodland, pasture, cropland, marsh.
Upper Spring Creek	Tributary to Goose Creek at river mile 4. Access at SR-1230 and at bridge and via Goose Creek on RD-304.	2.5 miles/84'	Tidal. Warm water. Classified SA.	Woodland, marsh.
Oyster Creek	Tributary to Pamlico River at river mile 4. Access at end of SR-1235 two miles north of Lowland.	2 miles/500'	Tidal. Warm water. Classified SA.	Woodland, marsh.
James Creek	Tributary to Middle Prong Oyster Creek at river mile 1. Ac- cess via Oyster Creek from end of SR-1235.	2 miles/1200'	Tidal. Warm water. Classified SA.	Woodland, marsh.

INVENTORY OF STREAMS

Name of Water	Location	Size	1/ 2/3/	Description of Water	Present Use
Clark Creek (Mouth to Mouse Harbor Bay Canal)	Tributary to Middle Prong Oyster Creek at river mile 1. Ac- cess via Oyster Creek from end of SR-1235.	1 mile/1000'		Tidal. Warm water. Classified SA.	Woodland, marsh.
Panlico Sound	Access at private boat ramp.	36 miles/2 miles		Tidal. Warm water. Classified SA.	Woodland, cropland, marsh.
Mouse Harbor Bay	Marginal Bay of Panli- co Sound. Access at Oyster Creek, from end of SR-1235.	Entire Bay (1300 Acres)		Tidal. Warm water. Classified SA.	Marshland.
Big Porpoise Bay	Marginal Bay of Panli- co Sound. Access at end of SR-1228.	Entire Bay (300 Acres)		Tidal. Warm water. Classified SA.	Woodland, marsh.
Middle Bay	Marginal Bay of Panli- co Sound. Access at end of SR-1228.	Entire Bay (500 Acres)		Tidal. Warm water. Classified SA.	Woodland, marsh.
Jones Bay	Marginal Bay of Panli- co Sound. Access at RC-304 at Hobucken and Intercoastal Waterway.	Entire Bay (1800 Acres)		Tidal. Warm water. Classified SA.	Woodland, marsh.

INVENTORY OF STREAMS

Name of Water	Location	Size 1/ 2	Description of Water 2/3/	Present Use
Lower Broad Creek	Tributary to Pamlico Sound. Access at end of SR-1328 and SR-1320 at Pamlico.	2.5 miles/1500'	Tidal. Warm water. Classified SA.	Woodland, cropland, marsh.
Bay River	Tributary of Pamlico Sound. Access at Bayboro on NC-304 and NC-55, at NC-307 at Vardemere and NC-304 at Gale Creek.	15 miles/1 mile	Tidal. Warm water. Classified SC.	Woodland, cropland, marsh, housing, and schools.
Gale Creek = 2	Tributary of Bay River. Access at NC-304, two miles southeast of Intercoastal Waterway at Hobucken Bridge.	2 miles/200'	Tidal. Warm water. Classified SA.	Woodland, marsh.
Bear Creek	Tributary of Bay River. Access at NC-304 at Mosic.	2 miles/150'	Tidal. Warm water. Classified SA.	Woodland, marsh.
Vardemere Creek	Tributary of Bay River. Access at end of NC-307 at Vardemere.	4 miles/250'	Tidal. Warm water. Classified SC.	Woodland, cropland, marsh.
Bonner Bay	Tributary of Bay River. Access through Bull Creek and Spring Creek at SR-1324 near Florence.	Entire Bay (400 Acres)	Tidal. Warm water. Classified SA.	Woodland, cropland, marsh.

INVENTORY OF STREAMS

Name of Water	Location	Size	1/	Description of Water	2/3/	Present Use
Spring Creek	Tributary of Bonner Bay. Access on SR-1327 near Florence.	3 miles/200'		Tidal. Warm water. Classified SA.		Woodland, cropland, marsh.
Ball Creek	Tributary of Bay River.	2 miles/200'		Tidal. Warm water. Classified SA.		Woodland, cropland, marsh.
Trent Creek	Tributary of Bay River. Access through Bay River at Payboro on NC-55 and NC-304 and on NC-55 at Alligator Creek bridge.	4 miles/250'		Tidal. Warm water. Classified SC.		Woodland, cropland, marsh.
Roche River (From Pamlico Sound to Wilkerson Point)	Tributary of Pamlico Sound. Access at Minnesota Beach, at Dawson Creek on SR-1302 and at Oriental on NC-55.	16 miles/4 miles		Tidal. Warm water. Classified SA.		Woodland, cropland, marsh, housing development, golf course.
Watts River (From Wilkerson Point to Broad Creek)	Tributary to Pamlico Sound. Access at SR-1123 at Minnesota Beach and SR-1114 at Kennels Beach.	34 miles/3000'		Tidal. Warm water.		Woodland, cropland, youth camps, golf course, housing development.
Salt Creek	Tributary to Neuse River. Access at NC-55 at Oriental.	2 miles/150'		Tidal. Warm water. Classified SC.		Woodland, cropland, marsh.

INVENTORY OF STREAMS

Name of Water	Location	Size	Description of Water	Present Use
Kershaw Creek	Tributary of Smith Creek. Access at NC-55 at Oriental.	2 miles/150'	Tidal. Warm water. Classified SC.	Woodland, cropland, marsh.
Greens Creek	Tributary of Kershaw Creek. Access at NC-55 in Oriental.	2 miles/150'	Tidal. Warm water. Classified SC.	Woodland, cropland, marsh.
Dawson Creek	Tributary to Neuse River. Access on SR-1302 at Jarefro.	4 miles/300'	Tidal. Warm water. Classified SC.	Woodland, cropland, marsh.
Beard Creek (Mouth to Furifoy Gut)	Tributary of Neuse River at river mile 6. Access at end of SR-1117 and at the SR-1102 bridge.	1.5 miles/75'	Tidal. Warm water. Classified SC.	Woodland, cropland, pasture, marsh.
Beard Creek (Furifoy Gut to origin)	Tributary to Neuse River. Access at SR-1100, SR-1102, and SR-1115 bridges, and at end of SR-1117.	6 miles/8'	Moderate flow. Warm water. Classified SC.	Woodland, cropland.
Geese Creek (Mouth to SR-1100 bridge)	Tributary of Neuse River. Access at end of SR-1110.	5 miles/200'	Tidal. Warm water. Classified SC.	Woodland, cropland, marsh, housing development, light industry.

INVENTORY OF STREAMS

Name of Water	Location	Size	1/ 2,3/	Description of Water	Present Use
Goose Creek (SR-1100 bridge to source)	Tributary to Neuse River at river mile 6. Access at end of SR-1117 and at the SR-1102 bridge.	1.5 miles/75'		Moderate flow. Warm water. Classified C.	Woodland, cropland, pasture, marsh.
Upper Broad Creek (Mouth to NC-55 bridge)	Tributary to Neuse River at river mile 9. Access at commercial boat ramp at Lee's Landing at end of SR-1103.	8 miles/250'		Tidal. Warm water. Classified SC.	Woodland, cropland, marsh.
Upper Broad Creek (NC-55 bridge to origin)	Tributary to Neuse River. Access at NC-55 and SR-1128 bridges.	10 miles/20'		Moderate flow. Warm water. Classified C.	Woodland, cropland, pasture.

Complex Natural Areas

There are no designated complex natural areas in Pamlico County.

Areas Sustaining Remnant Species

No area sustaining remnant species have been identified in Pamlico County.

Areas Containing Unique Geological Formations

Areas of unique geological formation are those places containing surface or near surface formations that are either themselves unique or especially unusual or notable examples of geological formations or processes in the coastal area. They are important educational, scientific or scenic resources that would be jeopardized by uncontrolled or incompatible development.

There is one such area in the county containing Pleistocene marine invertebrate fossils as well as terrestrial vertebrate fossils. It is located on Benner's Plantation in the Dawson Creek area.

Registered Natural Landmarks

There are no registered natural landmarks in Pamlico County.

Archeologic and Historic Sites

No archeologic sites of significance have been identified in Pamlico County.

Areas of Historic Significance are defined as Historic Places that are listed, or have been approved for listing by the North Carolina Historical Commission; or historical archaeological, and other places and properties owned, managed, or assisted by the State of North Carolina; properties or areas that are or may be designated

by the Secretary of the Interior as National Historic Landmarks.

Pamlico County has two sites of historic significance. The first being the China Grove House located one-half mile east of Dawson's Creek Bridge on State Road 1302. This house was constructed in 1790 and is a frame centerhall plan house with a gable roof incorporating double-tiered porches. The second significant historic site is the "Grandpappy" Holly Tree located two miles north of Olympia on State Road 1126. This tree is 210 years old with a circumference of 11 feet 1 inch. It is estimated to be the oldest holly tree in the nation. The site is presently being maintained for its historic significance.

AREAS WITH RESOURCE POTENTIAL

Productive Agricultural Lands

A modern detailed soil map is not available for Pamlico County. Until a modern detailed map is available a generalized soil map will be used to identify and locate productive farmlands, potentially productive farmlands and lands that are not economically or ecologically suitable for farmland.

The following is a list of the seven soil associations and the soil association assigned for CAMA planning purposes prepared in a joint effort by the U.S.D.A. Soil Conservation Service, the Soils Department at N.C.S.U. and the State Department of Natural and Economic Resources.

<u>Association</u>	<u>CAMA Planning Association</u>
1. Lenoir - Craven	Lenoir - Bladen - Craven
2. Leaf - Bayboro	Bladen - Bayboro - Portsmouth
3. Portsmouth - Torhunta	Portsmouth - Torhunta - Lakeland
4. Leon-Lynn Haven	Lynn Haven - Pamlico - Leon
5. Kenansville - Dragston	Kenansville - Leon - Lakeland
6. Ponzer - Pamlico	Belhaven - Ponzer - Wasda (upland mucks)
7. Tidal Marsh	(Tidal Marsh)

Soil associations may be designated into soil management groups ranging from soils with slight limitation (Management Group 1) to severe limitations (Management Group 8) if used as agricultural farmland. Association management groupings and limitations for farmland are listed:

<u>Management Group</u>	<u>Soil Association</u>
3	Kenansville - Leon - Lakeland

Limitations

The main limitations considered in this management group are soils with high water table but with moderately permeable subsoils that can be drained. The drainage of these soils predominately

ranges from well drained to very poorly drained with the larger proportion being in the poorly drained and somewhat poorly drained group. From an agricultural standpoint with drainage, these soils are some of the more productive soils of the Coastal Plains and would be considered excellent agricultural lands.

Management
Group
5

Soil Association
Portsmouth - Torhunta - Lakeland

Limitations

Examples of the limitations are high shrink-swell clay that have low bearing strength, high water tables, and slowly permeable subsoils. The soils in this area are normally poorly drained to very poorly drained with small amounts of better drained soils. Agriculture is totally unsuited except for forest products or some grasses unless drained. However, with excellent water management including surface drainage and the lowering of the water table, these soils are moderately well suited for agricultural purposes. However, the soils in this area are generally very costly to develop for agricultural purposes.

Management
Group
6

Soil Association
Lenoir - Bladen - Craven
Bladen - Bayboro - Portsmouth
Lynn Haven - Pamlico - Leon

Limitations

These soils have severe limitations not economically feasible to correct with the major limitations being severe flooding. From an agricultural standpoint the limitations are very severe due to not only flooding but high water tables and are not generally developed. However, certain small areas of higher ground may be used

for these purposes.

Management
Group

7

Soil Association

Belhaven - Ponzer - Wasda (Upland Muck)

Limitations

These soils include areas of critical environment that preclude development or may be developed at great risk. Examples, of soils that are included in these areas are the high marshes, and the large areas of organic soils. These soils include a wide range of internal drainage from excessively well drained to very poorly drained organic soils. The sandier soils that include excessively well drained to well drained soils can generally be developed with extreme caution. Agriculture in this area is not suited to low water supplying capacity of the soils and the need for continuous cover. From an agricultural standpoint the majority of these soils can be developed but would require significant capital investments in drainage, lime, etc. However, with drainage and proper fertility, these can be very productive soils.

Management
Group
8

Soil Association

Tidal Marsh

Limitations

These soils should not be developed as agricultural farmland. They include dunes, soils on the outer banks and soils in low tidal marshes.

The Generalized Soil Map (page 83) identifies the seven soil associations in the County. With this information it can be determined where productive and potentially productive agri-

cultural or environmentally unsuited soils for agricultural purposes are located in the County.

Closely related to agriculture is tree farming. There is a number of large tree raising companies who own land in Pamlico County with the main plants operating in neighboring counties.

<u>Companies</u>	<u>Ownership in Pamlico Co.</u>
Weyerhaeuser	20,660.92 acres
Pamlico Timber	16,336.00 acres
International Paper	11,100.07 acres
Taylor	14,051.20 acres
TOTAL	62,148.19 acres

Much of the soil needs ditches and large canals for drainage. When this is done it is very rich and level and well adopted for mass production farming. Some of the wasteland is being adapted for timber by the large timber and pulpwood companies such as Weyerhaeuser by ditches and canals. The land is thoroughly cleared, drained, and planted with the desired species of trees much as any other crop would be planted. The timber is hauled directly by truck to the sawmills or papermills.

These companies use proper forestry management practices for the production of mature trees in the shortest possible time. For the most part these companies provide access to the land holdings for hunters and other recreational activities.

These forest land are shown on the existing land use map.

Potentially Valuable Mineral Sites

The Pungo River Formation contains potentially economic beds

*1 = slight limitations

8 = severe and restrictive limitations

of phosphatic sand. It is composed of interbedded phosphatic clays, diatomaceous clays, phosphatic limestones, silty claystones, coquinas, calcareous clays, and phosphatic sands. The P_2O_5 content of the phosphatic sands ranges up to a known maximum of about 21 percent of the raw core sample. The above materials usually occur in definite zones, or horizons, in the formation that may be traced laterally across the County.

The Pungo River formation was apparently deposited in a northeast - southwest trending basin whose axis lies southeast of Beaufort County. Subsequent downwarping to the southeast has resulted in erosional leveling of the top of the formation. The formation underlies more than 700 square miles of the eastern part of Beaufort County and parts of northern Pamlico County. Its thickness ranges from a featheredge, a few miles east of the City of Washington, to more than 120 feet near the south shore of the Pamlico River in eastern Beaufort County. Its depth below mean sea level ranges from a minimum of about 40 feet near its western limits to more than 230 feet in the northeastern part of Beaufort County.

Information on phosphate deposits in Pamlico County are not available. Because Texas Gulf Incorporated purchased 16,336 acres in Pamlico County it may be assumed phosphate deposits do exist in the County and that these deposits are economically minable. Texas Gulf Incorporated land holdings are in Township I, north of Highway 55 and left of Highway 306 to the Craven and Beaufort County lines.

Another mineral resource in Pamlico County is titanium. Courthouse records show that National Lead Company secured titanium exploration leases on about 1,000 acres in No. 1 Township in Pamlico County. Of this, the company obtained deeds on 860 acres. Samples of the ore were taken along side State Road 306 about 500 feet south of the Beaufort County line. The top 11.5 feet averaged about 3.8 percent heavy minerals. It is anticipated that within the next two decades titanium mining may occur in Pamlico County.

There are no commercial sand pits in Pamlico County. The Department of Transportation, Division of Highway operates one sand pit in the Minnesott Beach area for use on driveways and wash out areas. In 1973, this pit produced 12,000 short tons of sand at a value of \$8,000.

There are no publicly owned lands for non-intensive outdoor recreational use. There are however, privately owned lands that are used for non-intensive outdoor use. Most of these lands are owned by the large paper companies and private individuals.

The N.C. Wildlife Resource Commission has agreements with some private landowners whereby their land is managed by the Commission as recreation and hunting areas. One such area found in Pamlico County is the Goose Creek Wildlife Management Area.

This area is located in Township 4 situated along the western bank of the Intercoastal Waterway.

There are no privately owned wildlife sanctuaries in the County.

The following is a description of the wildlife found in Pamlico County.

Wildlife

A high deer population occurs throughout most of the County and a moderate bear population occurs along the northern County line from Mesic to Hobucken. Most all small game species occur in abundance, including quail, rabbits, squirrel, dove, woodcock, snipe, raccoon and opossum. Foxes and wildcat are common. The clapper rail occurs in the coastal marshes, however, it is hunted infrequently. Abundant populations of all furbearers are present, including mink, otter, muskrat, beaver and nutria. Pamlico has an excellent waterfowl population, Wood ducks are abundant inland, and a wide variety of other tipping ducks and diving ducks occur in the Neuse and Pamlico Rivers, Pamlico Sound and in the natural and managed coastal marshlands and impoundments. Several thousand acres of mosquito control impoundments are currently being managed by the Wildlife Resource Commission and private interests. These areas of improved waterfowl habitat have done a great deal toward increasing both the numbers and variety of waterfowl which winter and also nest in this area. A small number of Canada geese occurs.

Fish

While licensed fishermen express a preference for catching large-mouth bass, this species comprises only about two percent of the total catch. Bluegill and redbreast make up about 48

percent of the catch, with white perch, catfish and other pan-fishes making up an additional 35 percent. Shad, pickerel and crappie each comprise about three percent or less. Unlicensed fishermen indicate a high preference for bluegill and redbreast.

Rare and Endangered Species

The American alligator is known to occur; the bald eagle and Atlantic sturgeon may be present.

CAPACITY OF COMMUNITY FACILITIES

Existing Water and Sewer Service Areas

The existing water serviced area in the County is Minnesott Beach (a private system). Two other areas soon to be serviced are Bayboro and Oriental.

There is only one sewage treatment plant in the County. It services the Pamlico County Courthouse complex.

Design Capacities

The following is a compilation of design capacities for the existing and proposed water works in the County.

Minnesott Beach

CENTRAL WATER SYSTEM-TOWN OF MINNESOTT:

EXISTING:

3500 L.F. 8" P.V.C. Mains & Valves
12,000 L.F. 6" P.V.C. Mains & Valves
3100 L.F. 3" P.V.C. Mains & Valves
18 ea. Fire Hydrants
75,000 Gallon Elevated Storage Tank
200' x 200' Pumping Station & Well Site
100' x 100' 6' Cyclone Fence Enclosure
One 6" Deep Well
8' x 16' Concrete Block Pump House
Well #1 & Electrical System
Well #2 Electrical System
Automatic Chlorination Equipment
Jet Pump, 240 gal. p/minute
Office Records & Supplies
Option on 200' x 200' No. 2 Well Site (Approved
Accounts Receivable)

PROPOSED FOR EXPANSION:

Well #2 and Site
Water Softner Equipment & Housing
Extension of Mains:
3200 L.F. 8" Mains
3800 L.F. 6" Mains
9 ea. Fire Hydrants
60 Service Lines

Oriental

Water and Sewer Treatment Plant: There are no treatment facilities which presently exist in Oriental. Water is provided by domestic wells and sewage disposal is handled by individual septic tanks. A water system has been proposed for the Town of Oriental at an estimated total cost of \$400,000. The proposed project will provide the Town of Oriental with a central water system which will be designed to serve the Town and surrounding rural areas. The system will include a 75,000 gallon elevated storage tank, two deep wells, water treatment facilities, and 41,000 feet of 8-inch, 6-inch, 4-inch, 3-inch, and 2-inch diameter distribution lines with fire hydrants, valves and fittings.

Bayboro

Sources of Water Supply: Bayboro is in the process of acquiring a municipal water system. Two wells have been drilled at a depth of 274 feet extending into the Castle Hayne Aquifer. The wells are located along Highway 55 in Bayboro behind the First Citizens Bank. The wells capacity are 100 gallons per minute. On the same site with the wells is an elevated storage tank. The storage tank has an elevation of 100 feet and a capacity of 100,000 gallons. An on-site treatment plant will have a capacity of 100 gallons per minute and can be duplicated. A softening and aeration plant will be included in Bayboro's water plant.

Pamlico County

Waste Treatment Facilities

Pamlico County Courthouse

Design capacity: .003 MGD
Current flow: .0025 MGD
Receiving stream: Bay River (SC)
Treatment: extended aeration, chlorination
Adequacy: adequate
% Utilization: 83%

Areas of Concern

North Shore Pamlico River - Isolated pockets moderate to dense development, pressure for additional development. Marginal to unsuitable for septic tanks due to soil conditions and high water table.

Hobucken area -- pressure for recreational development.

All communities in county are unsewered. Soil generally marginal or unsuitable, due to soil condition and high water table.

Bay River, Dawson's Creek, area around Oriental closed to taking shellfish.

Sanitary Landfills

Five sanitary landfills serve Pamlico County. Their locations are as follows:

- 1) Off N. C. Highway 55 near Pinedale Subdivision and Reelsboro.
- 2) Off N. C. Highway 306 two miles north of Arapahoe.
- 3) Off county road 1343 just south of Bayboro.
- 4) Off N. C. Highway 304 near Hollyville on county road 1217.
- 5) Off county road 1308 near Oriental.

Each of these landfills has approximately 10 acres and a life expectancy of 50 years. They are accessible to the public at all times.

The County does not operate a pickup system but the municipalities of Bayboro and Vandemere have their own trucks. One private hauler operates throughout the County and is paid directly by those individuals who are served. There is no fee for a private hauler to use a Pamlico County landfill, and there are also no private landfills.

Fire Protection

Fire protection in Pamlico County is currently furnished by six volunteer fire departments. These departments are Triangle at Bayboro, Reelsboro, Olympia, Oriental, Vandemere and Arapahoe.

The North Carolina Fire Insurance Rating Bureau rates fire departments and the level of protection numerically from 1 to 10. The lower the number, the higher the level of protection. Depending on the resources available, a rating from 3 to 5 is considered good. In small communities, due to a lack of resources, ratings of 7 and 8 might be considered good. It should be noted that these ratings effect the cost of fire insurance of particular note, is the fact that two of Pamlico County's six fire departments, Triangle and Arapahoe, are rated 9A on a three mile radius basis. These departments are presently applying for a 9AA rating on a four-mile radius. The other four departments maintain the equipment and volunteers for the 9A rating on a three-mile radius basis but have not applied for the rating. Presently, Vandemere has a request for a new truck and has been approved for a new siren.

It will not be feasible to apply for 9A rating in the towns which do not have a water and hydrant system even though these towns qualify in every other way.

Rescue Squad

The Pamlico County rescue squad is housed in the building formally used as the county jail behind the courthouse. The rescue squad presently has a 1966 Econoline ambulance, a 1974 ambulance, a 1972 Chevrolet van, a four-wheel drive jeep, an eighteen foot rescue boat, and a trailer with a portable generator. Each vehicle is equipped with the necessary stretchers, splints, first aid supplies, radios, etc.

The squad of thirty-one volunteers offer emergency ambulance service, search and rescue service, and instruction in first aid. Each member must pass a course in first aid techniques. It is required that an emergency medical technician must accompany each vehicle when it is on duty.

The County currently furnishes \$600 per month for the operational use of the rescue squad. Additional funds are secured by donation.

County Courthouse

The Pamlico County Courthouse is not adequate to serve the needs of the County. The existing building is in need of both major and minor repairs as well as being inadequate in size to house the number of persons employed by the County.

The County is presently constructing an annex to the courthouse which will provide the needed space to adequately house the

county employees both present and projected. The new annex upon completion, will house the Department of Social Services, the Agricultural Extension Agency, the Clerk of Superior Court, Magistrate, Solicitor, Recreation, Farmers Home Administration, Board of Elections, the ASCS Office, and the County Attorney. The veterans service officer, and the Building Inspector may also be relocated in the new annex.

The addition to the courthouse will be adequate to serve the County's needs for many years.

Schools

The Pamlico County Board of Education operates four schools within the County at the present time. The Pamlico County School System will have a total enrollment of 2,297 students during the 1975-76 school year. The school system capacity is 2,350. All schools are totally integrated. In all instances, with the exception of one, these schools tend to serve the entire County. Listed in the table on the other page is pertinent information relative to each school.

(Table on following page)

TABLE 25

Existing School Information

Name	Location	Site Size	Grades	Class-rooms	Capacity	1969-70 Enrollment	Cons. Date
Arapahoe Elementary	Arapahoe	15 ac.	K-8	12	300	241	1918
Fred A. Anderson Elementary	Bayboro	70 ac**	K-4	1 temporary 26	702	657	1967
Pamlico Grammar	Stonewall	20 ac.	5-9	38	900	859	1952
Pamlico County High	Bayboro	70 ac**	10-12	5 temporary 27	400	540	1951

Name	Gym	Auditorium	Cafeteria	Science Laboratory	Library	Special Classrooms
Arapahoe Elementary	Yes	No	Yes	No	Yes	Speech (1) Music (1) Reading (1)
Fred A. Anderson Elementary	No	Yes	Yes	No	Yes	Audio-Visual (1)
Pamlico Grammar	Yes	No	Yes	Yes (1)	Yes	Bandroom (1) Special Ed. (3) Speech, Read. (1)
Pamlico County High	Yes	Yes	Yes	Yes (1) (3 additional equipped class-rooms)	Yes	Shops (3) Bandroom (1)

*Excluding use of temporary classrooms

**Combination site size for both schools

***Excluding libraries, laboratories, special classrooms, etc.

SOURCE: Principal of each school and Superintendent of County Schools.

Pamlico Technical Institute

Pamlico County Technical Institute is presently located in the buildings of the former Alliance High School in Alliance. At present, the institute has six permanent classrooms, one temporary classroom, two shops, a library and office facilities. Current enrollment consists of some 100 full-time day students and evening enrollment represents approximately 500 part-time students. The current curriculum offers secretarial training, business administration, accounting, light construction, agricultural science, masonry, and mechanizations.

The Technical Institute is in the process of constructing a new facility on a 40 acre campus north of Alliance. The completion date for the facility is February 1976 and is approximately 35 percent complete. The new complex will include 38,000 square feet of heated space and house a library, shops, classrooms, a student lounge and office space. This new facility will adequately serve the technical educational needs of Pamlico County.

Public Library

The Pamlico County Library is not presently in service. The library will be housed in a separate building on the courthouse grounds. The library has one part-time librarian. Pamlico County is presently being served by the Craven-Pamlico-Carteret Regional Library. In addition, to this library service, the Craven-Pamlico Bookmobile serves Pamlico County during certain days every week.

A new school-public library should be in operation by September 1, 1977. This "media" center will have a student commons

area and supporting facilities. The media center is proposed and designed to adequately serve the needs of all students during the school day and to serve the public library needs of the centers citizenry of Pamlico County. The facility will be in operation on an extended-day basis and for eight hours on Saturdays during the regular school term. During the summer months hours from 10 a.m. to 6 p.m. Monday through Saturday will be observed.

Pamlico County Schools will be responsible for all building and furniture costs. It is estimated that approximately 20 percent of the total cost is attributed to additional requirements imposed by the public aspect of the operation. Therefore, 1973 Public School Facilities Fund money will be used for only 80 percent of the building and furnishing costs. Pamlico County schools, with additional appropriations from the Board of Commissioners, will provide local capital out-lay funds to complete the project.

- Pamlico County Schools will provide one certified librarian and one aide during the time that school is in session.
- The Public Library Board will provide one certified librarian to work a 35-hour work week year-round,
- Pamlico County Schools and the Public Library Board will jointly employ two library clerks and a part-time custodian.

In addition to the collection of books and periodicals owned by Pamlico County High School, the Public Library Board will immediately furnish 5,000 books and 50 magazine subscriptions to be shelved in the new facility for joint use. It is anticipated that at the end of a five-year period, the total book collection

shelved will be approximately 15,000 and that full access to the 85,000 books in the Regional System will be available to all users.

Recreation

The county recreation program was established in 1973 and consists of a director, three employees, a secretary and a maintenance man. The County operates tennis courts at Oriental, Silver Hill, Vandemere, Arapahoe, Mesic and the Hobucken and Lowland area, however, the courts are owned by the communities. Bayboro has a yearly program of athletics for both children and adults.

Presently, the Recreation Department is housed in the rear of the Social Services Building. The Department will be relocated in the new courthouse annex as soon as it is completed.

Department of Social Services

Through the thirteen employees of the Social Services Department, the County Social Services Board administers programs involving financial assistance, food assistance and medical assistance to the needy, aged, disabled, blind and children. A field service program is operated for the children and the aged. The department is under the supervision of a director assisted by social workers, office personnel, two homemakers and a CETA worker.

The Department is currently located in a twenty-three hundred square foot building that should be replaced. The building is of frame construction, is inadequate in size now. The Social Services Department will be moving into the courthouse annex when it is completed and the food stamp office will be relocated in

the present facility.

Although the population of Pamlico County is not increasing, the median age is on the rise. This will put a greater burden on the Social Services Department and increase demands for its services.

Medical Facilities

Pamlico County does not have any hospital facilities; however, the County does have a Medical Center which is a privately owned office clinic with modern facilities and adequate parking to handle the practice of two physicians. However, only one physician practices in this building and needs an additional one. The County also has a full-time practicing dentist. The County also has a pharmacy located near the Pamlico Medical Center. This centrally located facility should be sufficient for pharmaceutical needs in the foreseeable future.

New Bern, in Craven County at the western edge of Pamlico County, serves as the major medical center for a county area. The Craven County Hospital is presently expanding its facilities and adding more rooms. New Bern has the physicians, dentists and registered nurses to adequately serve the needs of not only Craven County but Pamlico County as well.

It would not be economically feasible to greatly expand the medical facilities presently offered by the County considering present and estimated future population.

County Health Department

The Pamlico County Health Department is housed in twenty-

two hundred square foot single story brick building in Bayboro. This structure is of modern design and is adequate for the use intended.

The Department has a part-time health officer that visits periodically from Craven County. However, a private physician located in Pamlico County serves as clinician for the Department. Medical equipment such as x-ray machines, laboratory equipment, etc. is maintained in the building. Regular maintenance and replacement will be adequate to maintain a proper level of service.

The Department's services include sanitation, statistics, clinics, etc. as do other county health departments. However, this health department has two major fields of concern that overshadow other elements. The lack of public water and sewers anywhere in the County coupled with poor drainage creates extreme difficulties with septic tank and drainage field operations. A second prevalent problem is mosquito control.

The administrative officer of the Department supervises thirteen employees, including nurses, sanitarians, clerks, x-ray technicians, dragline operators and mechanics. The present staff is deemed sufficient with the part-time services of the health officer and clinician.

Under the mosquito control and sanitary landfill operations the Department maintains two draglines, five pick-up trucks, a landing craft, a tractor truck, a lowboy, a flatbed, semi-trailer truck, two outboard motor boats, a grass mowing boat, two dump trucks, a crane, a front end loader a complete garage. The De-

partment has an extensive operation with approximately 1,250 miles of ditching in Pamlico and Beaufort Counties as well as operating five sanitary landfills throughout the Pamlico County.

Sheriff's Department

The Pamlico County Sheriff's Department provides law enforcement throughout the entire County including the incorporated municipalities. The Town of Oriental does have part-time unpaid law enforcement in addition to the Sheriff's Department.

The Department consists of the sheriff, three deputies that work in the field, and one full-time and one part-time deputy assigned to office duty with the primary responsibility of maintaining office records. New recruits in the Department as well as experienced employees, receive "on-the-job-training" and attend areawide law enforcement courses to meet new federal regulations.

The Department presently has three patrol cars, two 1974 Fords and one 1975 Ford. These vehicles are equipped with the latest communications equipment for direct contact with the sheriff's office.

Also included in the duties of the sheriff's department are collection of taxes and supervision of the jail through the deputy sheriff designated as the jailer. The Sheriff's Department is housed behind the county courthouse and is adequate for present and future population in Pamlico County.

Road System

Pamlico County does not have an extremely well developed

primary or secondary road system. Highways 55, 304, and 306 form the primary road network for the County. There are a total of 184.2 miles of paved roads and 79.6 miles of unpaved roads in the County. This involved 47.3 miles of rural primary roads and 10.1 miles of municipal primary roads. Access to the County is limited due to the convenience of the Neuse and Pamlico Rivers into the Pamlico Sound. The major access is by Highway 55 which runs east-west from New Bern to Bayboro where it turns to the south and terminates in Minnesott Beach.

The secondary road system of Pamlico County is also not well developed due to the quality land in certain portions of the County as well as the sparce population. The secondary road system is made up of 194.3 miles of rural secondary road and 9.4 miles of municipal secondary road. The secondary road system is most densely developed around the growth centers of the County.

The road system for the County is not well developed although it is considered adequate to serve both existing and projected development in the County. Access is a primary factor which limits the potential of Pamlico County and it would be very expensive to span the Neuse and Pamlico Rivers to improve egress and ingress to Pamlico County. Should these bridges be built, the thoroughfare plan calls for the rerouting and four-laning of Highway 306. Currently, the most highly used section of road in Pamlico County is along Highway 55 between Grantsboro and Alliance with an average daily traffic count of 4,000. This is quite below its capacity.

V. ESTIMATED DEMAND

ESTIMATED DEMAND

Population & Economy

Ten-Year Population Estimates

The Department of Administration figures for future populations in Pamlico County were based primarily on past trends. The population has been decreasing since 1940 and the Department of Administration predicts this trend to continue. The estimates were developed using a range due to the fact that there are so many unknown factors which may affect future populations of Pamlico County. The use of a range allows for the prediction of a mean population for the years in question while providing a prediction as to the possible range which could occur. The use of a range of population is also helpful when predicting income and expenditures since various ends of the range can be used in order not to overestimate revenue and underestimate needs for service.

Population estimates for Pamlico County were made for a fifty year period, 1980, 1985, 1990, 2000, and 2025. It is necessary to realize that the validity of projections made after 1985 decreased significantly since projections are made by using the population figures of the two previous dates, both of these being projectioned figures. There is no data or personal knowledge available which could contradict the projections made by the Department of Administration and it is realized that major steps would be necessary to alter the decreasing trend in population.

TABLE 26

Pamlico County Population Projections

	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>2000</u>	<u>2025</u>
Range	8,500	8,100	7,700	6,500	6,300
Mean	9,000	8,800	8,600	8,000	7,900
Range	9,500	9,500	9,500	9,500	9,500

These population estimates indicate the decrease in population will continue in Pamlico County and this fact is substantiated by general economic conditions which exist in the County.

Seasonal Populations

A significant seasonal population occurs during the summer months as vacationers are attracted to the water resources of the County. The following figures are estimates of a summer population based on the private seasonal dwelling units, motel rooms, and campground facilities.

TABLE 27

Additional Seasonal Population - Pamlico County

<u>Township I</u>	<u>Township II</u>	<u>Township III</u>	<u>Township IV</u>	<u>Township V</u>
* 417	* 288	*135	* 81	* 1,333

Total - 2,254

*Estimated additional summer population

As stated in the land use issues section the long range projections which show a decline are not in keeping with the majority of the citizens' desires.

Therefore, the relationship of the capabilities of the land and water to sustain a declining population is one of adequacy. Also, the capabilities of the land and water must be determined to know when a threshold of incapability is being reached. This is a study which needs to be undertaken as soon as possible.

Major Trends in the Economy

The main basic industry is, and shall continue to be, sea-food processing with timber products being second. Farm products added to these cover most of the County's exports and constitute the basic industries. Present cost of farm production will place more and more pressures for farm consolidation. Although the trend is toward fewer farm workers because of mechanization the income from farming will increase due to the necessity to meet the world's increasing need for food.

Although phosphate lands have been purchased by mining companies, these are reserves that are not expected to be mined in the next fifty years.

A local labor supply is increasing with the displacement of farm workers due to mechanization. However, before the local labor pool can be utilized certain obstacles must be overcome. Two prime deterrents to industrial development in Pamlico County are apparent. These deterrents are:

~~---~~

- 1) lack of water and sewer facilities
- 2) lack of north-south transportation route.

Bayboro has just completed a public water system and is in a 201 wastewater treatment planning area along with Alliance, Stonewall, Vandemere, and portions of Mesic. Oriental is in the process of obtaining a public water system and Minnesott Beach has a private water system. Ferries are now operating across the Pamlico and Neuse Rivers giving Pamlico County a north-south route. Hopefully, enough usage will merit a bridge across these two rivers giving even better access to and from Pamlico County.

These steps are in the right direction and in time should strengthen the economy of the County.

Another important segment of Pamlico County's economy is its tourist trade. The water resources of Pamlico County are a great recreational attraction. There are five summer camps in operation in the County located along the water. There are 623 seasonal dwelling units in Pamlico County which are predominantly owned by non-county residents. These visitors bring outside money into the County and help stimulate the local economy. It is expected that an even greater number of tourists will come to Pamlico County in the future with the possibility of some settling permanently in the area. The influx of new people, even seasonally, must be planned for, if they are to benefit the County to the fullest extent. Water and sewer facilities needs must be anticipated and subdivisions must be developed properly if the natural resources of Pamlico County are to be conserved. Non-intensive recreation is Pamlico County's main

attraction and should continue to stimulate the County's economy.

Future Land Needs

Population projections for Pamlico County indicate no growth over the next ten year planning period. However, inter-county population shifts are occurring with the migration of the County's younger citizens away from the area, and migration of water oriented tourists and retirees into the areas of highest water recreational potential. Although there are no areas designated developed, transition areas have been designated in the County in the face of a declining population. This is due to generally poor soils for septic tanks in an area where water and sewer facilities are most feasible.

Therefore, the County's transition area will be the only area change from its existing land use pattern. As noted above this will be from a health and environmental standpoint rather than a large population increase.

Community Facilities Demand

Because of a no growth population projection, the ten-year population projections were not used to determine facilities demand. Water and sewer needs were based on generally poor soils for septic tanks, a high water table, and a need for a more potable source of water.

As was mentioned earlier, Bayboro has just completed a municipal water system. An eight inch main runs up to the town limits of Alliance and discussion has taken place over the purchase of water by Alliance from Bayboro. Bayboro has also discussed this

possibility with Stonewall and Vandemere. Oriental is in the process of acquiring a public water system and has received a \$340,000 loan from FmHA and a \$200,000 grant under the Rural Development Program. A private water system is operating in Minnesott Beach.

The communities of Alliance, Bayboro, Stonewall, Vandemere and Mesic are included in a "201" Facilities Planning Area. After the completion of an engineering study to determine the feasibility of a sewerage disposal system and/or systems in the area money will possibly be available from federal and state sources along with local funds for the installation of said systems. A copy of the 201 boundary area map is to be found on page 195.

The Bayboro 201 planning area encompasses all of the land in the County designated Transition Area. The Environmental Protection Agency has guaranteed 75% of the funds necessary for a sewerage disposal plant in the planning area. Likewise, the state will contribute 12 1/2% and the local governments involved must provide the remaining 12 1/2% of the necessary funds.

The initial 201 planning study has not been completed discussing need and cost in the Bayboro 201 planning area. Therefore, the ability of the local governments cannot be ascertained at this time.

The following tables on revenues and expenditures and analysis of outstanding debt may be instrumental in determining the ability to finance community facilities.

TABLE 28
COUNTY REVENUES AND EXPENDITURES, PAMLICO COUNTY
FISCAL YEAR 1971-72

(Figures in Thousands of Dollars)	
<u>General Revenues</u>	<u>Pamlico</u>
Intergovernmental revenue	\$2,819
Tax revenue	2,169
Charges and miscellaneous	539
	111
<u>General Expenditures,</u> <u>All Functions</u>	2,811
Education	2,127
Public Welfare	327
Health	143
Interest on general debt	1
Other expenditures	213
Tax revenue, per capita	57
General revenues, per capita	298
General expenditures, per capita	297

Source: U. S. Bureau of the Census. 1974. 1972 census of governments. Volume 4, governments finances. Number 3, finances of county governments. U.S. Government Printing Office, Washington, D.C.

TABLE 29
Analysis of Outstanding Debt - Pamlico County
At June 30, 1975

Estimated Population July 1, 1974	Total Assessed Valuation (100%) (1974-1975)	Outstanding Debt	Debt Ratios	
			Appraised Valuation (%)	Per Capita
9,400	\$53,486,263	\$146,700	.27	\$15.61

TABLE 30

MUNICIPALITIES

Analysis of Outstanding Debt
At June 30, 1975

Municipality	Estimated Population July 1, 1974	Total Assessed Valuation 100%	Outstanding Debt	Debt Ratios	
				Appraised Valuation %	Per Capita
BAYBORO	664	\$3,456,086	\$305,000	8.83	\$459.33

As of now Oriental is not on the priority list for municipal funding of waste water treatment facilities. However, with the town's growth as a resort area the need of a treatment plant may become more feasible in the next five or six years.

The school system in Pamlico County is presently adequate. It is operating at 97% and population projections indicate it will not rise above this figure.

There is no further need to expand the present road system of Pamlico County. With the occurrence of a bridge crossing the Pamlico and Neuse Rivers consideration should then be given to the upgrading of Highway 306.

VI. PLAN DESCRIPTION

Description of Land Classification System

The land classification system for the coastal area consists of five classes listed as follows:

- A. Developed - Lands where existing population density is moderate to high and where there are a variety of land uses which have the necessary public services. They are areas with a minimum gross population density of 2,000 people per square mile. At a minimum, these lands contain existing public services including water and sewer systems, education systems, and road systems --- all of which are able to support the present population and its accompanying land uses including commercial, industrial, and institutional.
- B. Transition - Lands where local government plans to accommodate to high density development during the following ten year period and necessary public services will be provided to accommodate that growth. This area must be no greater than that required to accommodate the estimated county population growth at a minimum gross density of 2,000 people per square mile. The minimum services which will be required are the necessary water and sewer facilities, educational services, and roads.
- C. Community - Lands where low density development is grouped in existing settlements during the following ten year period and which will not require extensive public services now or in the future. This class will provide for all new rural growth when the lot size is ten acres or less. Such

clusters of growth may occur in new areas, or within existing community lands. As a guide for calculating the amount of land necessary to accommodate new rural community growth, a gross population density of 640 people per square mile or one person per acre should be used.

- D. Rural - Lands whose highest use is for agriculture, forestry, mining, water supply, etc., based on their natural resource potential. Also included are lands for future needs not currently recognized. The Rural class identifies land for long-term management for productive resource utilization and when limited public services will be provided. Development in such areas should be compatible with resource production. The Rural class includes all lands not in the developed, transition, community, and conservation classes.
- E. Conservation - Fragile, hazard, and other lands necessary to maintain a healthy natural environment and necessary to provide for the public health, safety, or welfare. Lands placed in the Conservation class are the least desirable for development because:
- 1) They are too fragile to withstand development without losing their natural value and/or;
 - 2) They have severe or hazardous limitations to development and/or;
 - 3) Though they are not highly fragile or hazardous, the natural resources they represent are too valuable to endanger by development.

Projected Description by Township

The following is the next ten year policy for development by township for Pamlico County and a map of the described areas is found in the pocket on the back cover. The ten year population projection was utilized as the basis for determining land demand for land classification. Lands classed Transition, Community and Rural were based on local objectives.

Township I

The land in Township I should remain predominantly rural. There are to be no developed or transition area; however, there will be areas of community designation. These communities and their acreages are:

Olympia	162.0
Reelsboro	306.0
Grantsboro	216.0
Kennel's Beach	43.2

Conservation areas are those marshlands situated along the Upper Broad Creek and its mouth along the Neuse River, Goose Creek, and Beard's Creek. These areas are also Areas of Environmental Concern along with the estuarine waters of the creeks and Neuse River adjoining Township I lands and an area of erosion along the Neuse River near the mouth of Beard's Creek. Another Area of Environmental Concern is the "Grandpappy" Holly Tree located along State Road 1126. This tree is of historical and botanical value being the oldest holly tree in the U.S.A.

Township II

Township II land will remain predominantly rural. There will be no areas of developed classification and one area of transition. This area of transition is along Highway 55 (9.08 acres) leading

into Stonewall and in Stonewall (91.80 acres) along a portion of State Road 1337. This total area is approximately 100.9 acres and has been designated transition because water and sewer facilities are needed from a health standpoint. Soils are not generally suited for septic tanks.

The four acres designated communities and their acreages are:

Florence	270.0
Pamlico	46.8
Whortonsville	158.4
Merritt	144.0

Conservation areas will be the marshlands along the Neuse and Bay Rivers and the marshlands along their creeks. These areas are also designated Areas of Environmental Concern. Other areas of Environmental Concern in Township II are the estuarine waters of the Neuse and Bay Rivers and their creeks and areas of erosion along the Neuse River. (The areas are shown on the AEC map).

Township III

The land of Township III will also remain predominantly rural. There will be no developed areas; however, there will be the largest area of transition in the County located in Township III. This area (actually two adjoining areas) is Bayboro and Alliance. This transition area is approximately 171.23 acres in Alliance and 181.35 acres in Bayboro for a total of 352.58 acres. Here, too, this area has been designated transition because water and sewer facilities are needed from a health standpoint. Soils are not generally suited for septic tanks.

The three areas and their acreages designated community in the Township are:

Maribel	208.8
Vandemere	234.0
Mesic	522.0

Conservation areas in Township III are those marshlands along the Bay River and its creeks and those marshlands around Jones Bay. Those estuarine waters of the Bay River and its creeks, Jones Bay, and those of Pamlico Sound are also conservation areas. These same conservation areas are to be Areas of Environmental Concern.

Township IV

There will be no developed or transition classification designated in Township IV. Two community classifications and their acreages in the Township are:

Hobucken	424.8
Lowland	415.6

Conservation areas will be all marshlands surrounding Goose Creek Island, and all the estuarine waters surrounding Goose Creek Island. Rural lands will be the remaining interior land of Goose Creek Island and that portion west of the Goose Creek Wildlife Management Area.

Those lands to be designated Areas of Environmental Concern are all conservation lands.

Township V

The majority of Township V land is also rural. There will be no developed classification and there will be no transition area

The designated communities of the Township are:

Oriental	288.0
Dawson's Creek	180.0
Janiero	151.2
Minnesott Beach	691.2
Arapahoe	439.2

These communities have a fluctuating population that peaks during the summer months. Conservation areas will be those marshlands along the Neuse River and its creeks.

Areas of Environmental Concern will consist of these same conservation areas, erosive areas along the Neuse River, estuarine waters of the Neuse River and its creeks and China Grove Plantation House.

VII. AREAS OF ENVIRONMENTAL CONCERN

AREAS OF ENVIRONMENTAL CONCERN

Pamlico County proposed interim Areas of Environmental Concern as mapped include the following categories with guideline description and specific land uses allowed.

Coastal Wetlands - General

Coastal wetlands are defined as 'any salt marsh or other marsh subject to regular or occasional flooding by tides, including wind tides (whether or not the tide waters reach the marshland areas through natural or artificial watercourses), provided this shall not include hurricane or tropical storm tides.' Salt marshland or other marsh shall be those areas upon which grow some, but not necessarily all, of the following salt marsh and marsh plant species: Smooth or salt water Cordgrass (Spartina alterniflora); Black Needlerush (Juncus roemerianus); Glasswort (Salicornia spp.); Salt Grass (Distichlis Spicata); Sea Lavender (Limonium spp.); Bulrush (Scirpus spp.); Saw Grass (Cladium jamaicense); Cat-Tail (Typha spp.); Salt-Meadow Grass (Spartina patens); and Salt Reed Grass (Spartina cynosuroides). Included in this statutory definition of wetlands is 'such contiguous land as the Secretary of NER reasonably deems necessary to affect by any such order in carrying out the purposes of this Section. (G.S. 113-230 (a)).'

For policy purposes, coastal wetlands may be considered in two categories: (1) low tidal marsh; (2) other coastal marshlands which have different significance and policy implications.

Coastal Wetlands - Low Tidal Marshland

- a. Description. Defined as marshland consisting primarily

of Spartina alterniflora and usually subject to inundation by the normal rise and fall or lunar tides.

b. Significance. Low tidal marshland serves as a critical component in the coastal ecosystem. The marsh is the basis for the high net yield system of the estuary through the production of organic detritus (partially decomposed plant material) which is the primary input source for the food chain of the entire estuarine system. Estuarine dependent species of fish and shellfish such as menhaden, shrimp, flounder, oysters and crabs currently make up over 90 percent of the total value of North Carolina's commercial catch.

In addition, the roots and rhizomes of the Spartina alterniflora serve as waterfowl food and the stems as wildlife nesting material. Low tidal marsh also serves as the first line of defense in retarding shoreline erosion. The plant stems and leaves tend to dissipate wave action while the vast network of roots resists soil erosion. Marshes of this type operate additionally as traps for sediment originating from upland runoff thus reducing siltation of the estuarine bottoms and consequent detriment to marine organisms.

c. Policy Objective. To give the highest priority to the preservation of low tidal marshland.

d. Specific Land Uses. Specific land uses shall be those consistent with the above policy objective. These marshes are considered unsuitable for all development which will alter their natural functions. Inappropriate land uses include, but are not

limited to the following examples: restuarants and businesses; residences, apartments, motels, hotels, and trailer parks; parking lots and offices; spoil and dump sites; wastewater lagoons, public and private roads and highways; and factories. Examples of acceptable land uses include utility easements, fishing piers, docks, certain agricultural uses except when excavation or filling affecting estuarine or navigable waters is involved, and such other uses which do not significantly alter the natural functions of the marsh.

e. Location. Low tidal marshland in Pamlico County is found predominantly in the northeastern part of the County adjacent to the Pamlico Sound.

f. Enforcement. Enforcement of the specific land use requirements of the above subsection d. shall be maintained through enabling legislation (G.S. 153A) and existing state and federal law.

Coastal Wetlands - Other Coastal Marshland

a. Description. All other marshland which is not low tidal marshland and which contains the species of vegetation.

b. Significance. This marshland type also contributes to the detritus supply necessary to the highly productive estuarine system essential to North Carolina's economically valuable commercial and sports fisheries.

The higher marsh types offer quality wildlife and waterfowl habitat depending on the biological and physical conditions of the marsh. The vegetative diversity in the higher marshes usually supports a greater diversity of wildlife types than the

limited habitat of the low tidal marsh. This marshland type also serves as an important deterrent to shoreline erosion especially in those marshes containing heavily rooted species. The dense system of rhizomes and roots of Juncus roemerianus are highly resistant to erosion. In addition, the higher marshes are effective sediment traps.

c. Policy Objectives. To give a high priority to the preservation and management of the marsh so as to safeguard and perpetuate their biological, economic and aesthetic values.

d. Specific Land Uses. Specific land uses shall be those consistent with the above policy objective. Highest priority shall be given to the conservation of existing marshlands. Second priority for land use allocation of this type shall be given to development which requires water access and cannot function anywhere else, such as ports, docks and marinas, provided that the actual location of such facilities within the marsh consider coastal, physical and biological systems and further provided that feasible alternatives regarding location and design have been adequately considered and need for such development can be demonstrated. Such allocation may only be justified by the projected land use demands and by community development objectives, but in no case shall the allocation exceed the capacity of the marshland system to sustain losses without harm to the estuarine ecosystem unless the losses would be offset by a clear and substantial benefit to the public.

e. Location. Other coastal marshland is found in Pamlico County predominantly along the interior streams and the Bay River.

f. Enforcement. Enforcement of the specific land use requirements of the above subsection d. shall be maintained through enabling legislation (G.S. 153A) and existing state and federal law.

Estuarine Waters

a. Description. Estuarine waters are defined in G.S. 113-229 (n)(2) as, 'all the water of the Atlantic Ocean within the boundary of North Carolina and all the waters of the bays, sounds, rivers, and tributaries thereto seaward of the dividing line between coastal fishing waters and inland fishing waters, as set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Conservation and Development filed with the Secretary of State entitled 'Boundary Lines, North Carolina Commercial Fishing Inland Fishing Waters, revised March 1, 1965,' or as it may be subsequently revised by the Legislature.

b. Significance. Estuaries are among the most productive natural environments of North Carolina. They not only support valuable commercial and sports fisheries, but are also utilized for commercial navigation, recreation, and aesthetic purposes. Species dependent upon estuaries such as menhaden, shrimp, flounder, oysters and crabs make up over 90 percent of the total value of North Carolina's commercial catch. These species must spend all or some part of their life cycle in the estuary. The high level of commercial and sports fisheries and the aesthetic appeal of Coastal North Carolina is dependent upon the protection and sustained quality of our estuarine areas.

c. Policy Objective. To preserve and manage estuarine waters so as to safeguard and perpetuate their biological, economic, and

aesthetic values.

d. Specific Uses. Specific uses shall be those consistent with the above policy objective. Highest priority shall be given to the conservation of estuarine waters. The development of navigational channels, the use of bulkheads to prevent erosion, and the building of piers or wharfs where no other feasible alternative exists are examples of land uses appropriate within estuarine waters provided that such land uses will not be detrimental to the biological and physical estuarine functions and public trust rights. Projects which would directly or indirectly block or impair existing navigation channels, increase shoreline erosion, deposit spoils below mean high tide, cause adverse water circulation patterns, violate water quality standards, or cause degradation of shellfish waters are generally considered incompatible with the management of estuarine waters.

e. Location. Those waters classified as estuarine as opposed to inland waters in Pamlico County are as follows;

Pamlico River.....	Inland Waters above, Estuarine Waters below N & S RR bridge at Washington
Lower Goose Creek (2)	Inland Waters above, Estuarine Waters below a line from Pasture Point to Long Neck Point
Dixons Creek (3)	Estuarine
Patons Creek (4)	Estuarine
Wilson Creek (5)	Estuarine
Eastham Creek (6)	Inland Waters above, Estuarine Waters below Watson Fishhouse
Upper Spring Creek (7).....	Inland Waters above, Estuarine Waters below N.C. 304 bridge
Oyster Creek (8).....	Estuarine
Clark Creek (9).....	Estuarine
Middle Prong (10).....	Estuarine
James Creek (11)	Estuarine

Famlico Sound (12).....	Estuarine
Porpoise Creek (13).....	Estuarine
Drum Creek (14)	Estuarine
Bay River (15).....	Inland Waters above, Estuarine Waters below piling at Stonewall
Gale Creek (16).....	Inland Waters above, Estuarine Waters below N.C. 304 bridge
Chadwick Creek (17).....	Estuarine
Bear Creek (18).....	Estuarine
Vandemere Creek (19).....	Inland Waters above, Estuarine Waters below N.C. 304 bridge
Long Creek (20).....	Inland Waters
Smith Creek (21).....	Estuarine
Chapel Creek (22).....	Inland Waters above, Estuarine Waters below N.C. 304 bridge
Raccoon Creek (23).....	Estuarine
Neals Creek (24)	Estuarine
Trent Creek (25)	Inland Waters above, Estuarine Waters below Thomas Creek
Masons Creek (26).....	Estuarine
Moore Creek (27)	Estuarine
Rices Creek (28).....	Estuarine
Ball Creek (29).....	Estuarine
Cabin Creek (30).....	Estuarine
Riggs Creek (31).....	Estuarine
Spring Creek (32).....	Estuarine
Greens Creek (33).....	Estuarine
Neuse River (34).....	Inland Waters above, Estuarine Waters below Pitch Kettle
Swan Creek (35).....	Estuarine
Lower Broad Creek (36).....	Inland Waters above, Estuarine Waters below Old Mill Site
Greens Creek (37).....	Estuarine
Pittman Creek (38).....	Estuarine
Burton Creek (39).....	Estuarine
Brown Creek (40).....	Estuarine
Spices Creek (41).....	Estuarine
Gideon Creek (42).....	Estuarine
Tar Creek (43).....	Estuarine
Parris Creek (44).....	Estuarine
Orchard Creek (45).....	Estuarine
Pierce Creek (46).....	Estuarine
Whitaker Creek (47)	Estuarine
Smith Creek (48).....	Inland Waters above, Estuarine Waters below a point one mile above mouth
Greens Creek (49).....	Inland Waters above, Estuarine Waters below a point one mile above mouth
Kershaw Creek (50).....	Inland Waters above, Estuarine Waters below a point one mile above mouth
Dawson Creek (51).....	Inland Waters above, Estuarine Waters below a point three-quarters mile above mouth
Tarkiln Creek (52).....	Inland Waters
Gatlin Creek (53).....	Inland Waters
Little Creek (54)	Inland Waters
Mill Creek (55)	Inland Waters
Beard Creek (56).....	Inland Waters above, Estuarine Waters below a point three-quarters mile above mouth
Lower Duck Creek (57).....	Inland Waters
Goose Creek (58).....	Inland Waters above, Estuarine Waters below the Narrows
Upper Broad Creek (59).....	Inland Waters above, Estuarine Waters below Flatty Creek
Flatty Creek (60).....	Inland Waters

f. Enforcement. Enforcement of the specific land use requirements of the above subsection d. shall be maintained through existing state and federal law.

Renewable Resource Areas - Watersheds or Aquifers - General

Public water supply watersheds or aquifers are defined as areas that are present sources of public water supply, as identified by the N.C. Commission for Health Services or the Environmental Management Commission, or that are classified for water supply pursuant to G.S. 143-214.1.

Renewable Resource Areas - Watersheds or Aquifers - Small Surface Water Supplies

a. Description. Defined as relatively small watersheds or catchment areas which contain a stream(s) classified A-I or A-II by the Environmental Management Commission.

b. Significance. Small water supply watersheds represent a source of potable water for a locality or region. Any loss or serious detriment to such an area would have serious public health implications. Such a loss would also have a significant adverse financial impact.

Uncontrolled development within the watershed would cause significant changes in the runoff patterns and would affect the quantity of water available as a raw water supply. Such development would also adversely affect water quality by introducing a wide variety of pollutants from homes, businesses, or industries, either through discharge or surface runoff into the water supply.

c. Policy Objective. To insure the continued maintenance

of water quality and quantity of the surface water supply.

d. Specific Land Uses. Specific land uses shall be those consistent with the above policy objective.

e. Location. At the present time there are no watersheds on catchment areas in Pamlico County which contain stream(s) classified A-I and A-II by the Environmental Management Commission. This category will only become effective should a Pamlico County stream be so designated.

f. Enforcement. Enforcement of the specific land use requirements of the above subsection d. shall be the responsibility of the N.C. Department of Natural and Economic Resources, Division of Environmental Management.

Fragile, Historic or Natural Resource Areas - Areas Containing Unique Geological Formations

a. Description. Areas containing unique geological formations will be identified by the State Geologist. These places contain surface or near surface formations that are either themselves unique or are especially unusual or notable examples of geologic formations or processes in the coastal area.

b. Significance. Unique geological areas provide surface or near surface exposures of unique geologic formation or processes of the coastal area. They are important education, scientific, or scenic resources that would be jeopardized by uncontrolled or incompatible development.

c. Policy Objective. To preserve the scientific, educational or scenic values of unique geological formations so that they may

be available for future study and enjoyment.

d. Specific Land Uses. Specific land uses shall be those consistent with the above policy objective. Uses within areas containing unique geological formations shall be tailored to the particular unique qualities of the individual area.

e. Location. There is one such area in the County containing Pleistocene marine invertebrate fossils as well as terrestrial vertebrate fossils. It is located on Benner's Plantation in the Dawson Creek area.

f. Enforcement. Enforcement of the specific land use requirements of the above subsection d. shall be through G.S. 153A.

Fragile, Historic or Natural Resource Area - Historical Places

a. Description. Defined as historic places that are listed, or have been approved for listing by the North Carolina Historical Commission, in the National Register of Historic Places pursuant to the National Historic Preservation Act of 1966; historical, archaeological, and other places and properties owned, managed, or assisted by the State of North Carolina pursuant to G.S. 121; and properties or areas that are designated by the Secretary of the Interior as National Historic Landmarks.

b. Significance. Historic resources are both non-renewable and fragile. They owe their significance to their association with American history, architecture, archaeology, and culture. Properties on or approved for the National Register of Historic Places may be of national, state, or local significance.

c. Policy Objective. To protect and/or preserve the integrity of districts, sites, buildings, and objects in the above categories.

d. Specific Land Uses. Specific land uses shall be those consistent with the above stated policy objective. Land use which will result in substantial irreversible damage to the historic value of the area is inappropriate.

e. Location. Pamlico County has two sites of historic significance. The first being the China Grove House located one-half mile east of Dawson's Creek Bridge on State Road 1302. This house was constructed in 1790 and is a frame centerhall plan house with a gable roof incorporating double-tiered porches. The second significant historic site is the "Grandpappy" Holly Tree located two miles north of Olympia on State Road 1126. This tree is 210 years old with a circumference of 11 feet 1 inch. It is estimated to be the oldest holly tree in the nation. The site is presently being maintained for its historic significance.

Areas Subject to Public Rights - General

Areas such as waterways and lands under or flowed by tidal waters or navigable waters, to which the public may have rights of access or public trust rights and areas which the State of North Carolina may be authorized to preserve, conserve, or protect under Article XIV, Section 5, of the North Carolina Constitution.

Areas Subject to Public Rights - Certain Public Trust Areas

a. Description. All waters of the Atlantic Ocean and the lands thereunder from the mean high water mark to the seaward limit of State jurisdiction; all natural bodies of water subject to measurable lunar tides and lands thereunder to the mean high

water mark; all navigable natural bodies of water and lands thereunder to the mean high water mark or ordinary high water mark as the case may be, except privately owned lakes to which the public has no right of access; all waters in artificially created bodies of water in which exists significant public fishing resources or other public resources, which are accessible to the public by navigation from bodies of water in which the public has rights of navigation; all waters in artificially created bodies of water in which the public has acquired rights by prescription, custom, usage, dedication or any other means. In determining whether the public has acquired rights in artificially created bodies of water, the following factors shall be considered: (i) the use of the body of water by the public; (ii) the length of time the public has used the area; (iii) the value of public resources in the body of water; (iv) whether the public resources in the body of water are mobile to the extent that they can move into natural bodies of water; (v) whether the creation of the artificial body of water required permission from the State; and (vi) the value of the body of water to the public for navigation from one public area to another public area. For purposes of the description in Areas Subject to Public Rights - General and Areas Subject to Public Rights - Certain Public Trust Areas, the following definitions shall apply:

- (1) Mean High Water Mark means the line on the shore established by the average of all high tides. It is established by survey based on available tidal datum. In the absence of such datum, the mean high water mark shall be determined by physical markings or comparison of the area in question with an area having similar physical characteristics for which tidal datum is readily available.
- (2) Navigable means navigable-in-fact.

- (3) Navigable-in-Fact means capable of being navigated in its natural condition by the ordinary modes of navigation including modes of navigation used for recreation purposes. The natural condition of a body of water for purposes of determining navigability shall be the condition of the body of water at mean high water or ordinary high water as the case may be, and the condition of the body of water without temporary natural obstructions. Temporary natural conditions such as water level fluctuation and temporary natural obstructions which do not permanently or totally prevent navigation do not make an otherwise navigable stream non-navigable.
- (4) Ordinary High Water Mark means the natural or clear line impressed on the land adjacent to the water body. It may be established by erosion or other easily recognized characteristics such as shelving, change in the character of the soil, destruction of terrestrial vegetation or its inability to grow, the presence of litter and debris, or other appropriate means which consider the characteristics of the surrounding area. The ordinary high water mark does not extend beyond the well defined banks of a river where such banks exist.

b. Significance. The public has rights in these waters including navigation and recreation. In addition, these waters support valuable commercial and sports fisheries, have aesthetic value, and are important potential resources for economic development.

c. Policy Objective. To protect public rights for navigation and recreation and to preserve and manage the public trust waters so as to safeguard and perpetuate their biological, economic and aesthetic value.

d. Specific Uses. Specific uses shall be those consistent with the above policy objective. Any land use which interferes with the public right of navigation, or other public trust rights, which the public may be found to have in these waters, shall not be allowed. The development of navigational channels, drainage ditches, the use of bulkheads to prevent erosion, and the building of piers or wharfs are examples of land use appropriate within

public trust waters provided that such land uses will not be detrimental to the biological and physical functions and public trust rights. Projects which would directly or indirectly block or impair existing navigation channels, increase shoreline erosion, deposit spoils below mean high tide, cause adverse water circulations patterns, violate water quality standards, or cause degradation of shellfish waters are generally considered incompatible with the management of public trust waters.

e. Location. Lands and water within Pamlico County which meet the descriptive requirements of subsection a. are found throughout the County. Each individual site must therefore be judged on its own circumstances, but are predominantly shorelines and waterways.

f. Enforcement. Enforcement of the specific land use requirements of the above subsection d. shall be maintained through existing state and federal law.

Natural Hazard Areas - General

Natural hazard areas where uncontrolled or incompatible development could unreasonable endanger life or property, and other areas especially vulnerable to erosion, or other adverse effects of sand, wind, and water.

Natural Hazard Areas - Excessive Erosion Areas - General

Areas where geologic and soil conditions are such that there is a substantial possibility of excessive erosion or seismic activity.

Natural Hazard Areas - Excessive Erosion Areas - Estuarine and River Erodible Areas

a. Description. Defined as the area above ordinary high water where excessive erosion has a high probability of occurring. In delineating the landward extent of this area a reasonable 25-year recession line shall be determined using the best available information. The information necessary to identify these areas will be supplied by the State Geologist.

b. Significance. The estuarine and sound and river erodible areas are natural hazard areas especially vulnerable to erosion. Development within this type AEC is subjected to the damaging process of erosion unless special development standards and preventive measures are employed.

c. Policy Objective. To insure that development occurring within these areas is compatible with the dynamic nature of the erodible lands thus minimizing the likelihood of significant loss of property.

d. Specific Land Uses. Specific land uses shall be those consistent with the above policy objective. Permanent or substantial residential, commercial, institutional or industrial structures are not appropriate uses in estuarine and sound and river erodible areas unless stabilization has been achieved along the affected reach. Recreational, rural and conservation activities represent appropriate land uses in those erodible areas where shoreline protective construction has not been completed.

e. Location. River erodible areas are found along the Neuse River and Pamlico River, and Pamlico Sound. These areas are shown in general terms as proposed AEC's on the countywide map.

f. Enforcement. Enforcement of the specific land use requirements for subsection d. above shall be maintained through G.S. 153A.

Development Standards Applicable to All AEC's

a. No development should be allowed in any AEC which would result in a contravention or violation of any rules, regulations, or laws of the State of North Carolina or of local government in which the development takes place.

b. No development should be allowed in any AEC which would have a substantial likelihood of causing pollution of the waters of the State to the extent that such waters would be closed to the taking of shellfish under standards set by the Commission for Health Services pursuant to G.S. 130-169.01.

VIII. SUMMARY

Data Collection, Analysis, and Conclusions

Data collection required for development of the Pamlico County Land Development Plan took nearly 18 months and was often an exhaustive process. In August of 1974, field surveys were begun to determine existing land use, the first step in the planning process. During the period following August, 1974 until November, 1975 when the first draft plan was submitted to the Coastal Resources Commission, data collection by staff was a daily duty. All departments in county government, the municipalities in Pamlico County, and many state and federal agencies were asked to assist and provide information for plan development. Private groups and individuals were often consulted and proved invaluable in obtaining reliable sources.

Collection of data was organized following conventional planning for sequence, but not necessarily for methods. Existing information on land use, population, and economy was gathered on each township and presented to the citizens attending each township meeting. After each meeting summaries were printed and goals formulated. Proposed areas of environmental concern were drawn from state categories by the Advisory Board, Planning Board, and County Commissioners. Land classification resulted in continuing efforts by the planning groups above and many individuals. An important step was reached when the first draft was submitted on November 21, 1975.

After extensive review by the Coastal Resources Commission, revisions and corrections, the plan is required to meet the test of public review, County adoption, and implementation.

Major Conclusions

Any conclusion drawn for the Plan can easily be seen in the goals and objectives section. The nine goals are:

- Recreation
- Employment
- Water & Sewer
- Industrial Development
- Land Use Controls
- Agricultural & Forestry Production
- Marine Habitat Protection
- Wildlife
- Road System

These goals indicate the desire of the people of Pamlico County to conserve and preserve Pamlico County and its many resources, not only for the present, but also for many future generations.

A second major conclusion can be drawn from the first. Citizens of Pamlico County must be consulted on any manner of attempt at land use planning or control by any agency, local or otherwise. Planning without the assistance or desires of the people will certainly fail.

B. APPLICATION OF DATA

Data was applied in every instance to plan formulations. Data was researched, collected, and presented to the planning groups and in many cases, specialized experts and the general public.

Constraints in the application of data were the CAMA guidelines and general desires of the County. In most cases little or no conflict existed. Only in certain transition areas where density is not anticipated to reach required figures does significant conflict occur. Soil and water quality conditions in these areas dictate the necessity of central water and sewer service and justify inclusion as county transition zones.

Development in coastal flood plains is the only other area where conflict may exist between county wishes and CAMA guidelines. This question, however, can only be resolved after Areas of Environmental Concern are designated and criteria for protection adopted.

Formulation of all other sections of the Land Use Plan were a direct analysis and interpretation of data collected.

IX. CITY-COUNTY PLAN

RELATIONSHIP DEFINED

Because the County and towns were striving toward similar goals, a good working relationship was maintained between municipal and County interest. Since there are good communications, because the municipalities elected to come under the county planning jurisdiction, no inconsistencies arose between city and county concerning goals and objectives, land use needs, community facility needs, potential areas of environmental concern, etc.

Example: Goals for all towns and county emphasized the promotion and protection of the water and marine resources. Both towns and county are working toward the realization of a sewerage disposal system for the 201 planning area in the County, in an effort to protect their marine resources.

SECTION TWO - INCORPORATED AREAS

The following are those sections for incorporated areas within the county plan.

ALLIANCE

Introduction

The Town of Alliance is located west of Bayboro in central Pamlico County and was incorporated in 1965. Alliance is bordered on the east by Bayboro, to the south by the Light Ground Pocosin and to the north by the Bay City Pocosin. The Town is served by Highway 55 and by a spur of the Southern Railroad. Alliance had a population of 577 persons in 1970 as indicated by the census and 576 persons in 1973 based on revenue sharing records. Alliance has developed with mixed commercial, residential, governmental and institutional uses.

The general topography of the area is typical to that of eastern North Carolina. The elevation is approximately 15 feet mean sea level and slopes very slightly to the east. Portions of the Town are subject to coastal flooding during severe storms.

Population

Since the Town was incorporated in 1965 the only census figure for the Town is the 1970 census which places the population at 577 persons. The population of the Town is not expected to increase during the ten year planning period. In order to better analyze the population of Alliance, a more detailed breakdown of the overall population is necessary.

The racial composition of Alliance is weighed heavily toward the white population with 457 or 79.2 percent of the total population as compared to 120 non-white residents or 20.2 percent of the population.

Another consideration when studying the population of a town is the age and sexual makeup of the population. The population of Alliance is somewhat different than other towns in the area with heavier concentrations of middle-aged adults and children under 5 years old. The sexual composition of the population shows that there are a few more females in the population with 300 as compared to 277 males.

<u>Age</u>	<u>Male</u>	<u>Female</u>
Under 5	28	37
5	7	3
6	6	7
7-9	24	15
10-13	15	21
14	6	5
15	8	5
16	3	6
17	3	5
18	4	1
19	4	4
20	1	5
21	3	4
22-24	13	16
25-34	36	31
35-44	34	26
45-54	24	28
55-59	10	13
60-61	8	6
62-64	6	12
65-74	17	32
75 & Over	<u>17</u>	<u>18</u>
TOTAL	277	300

Future Population

The Town of Alliance should not experience any significant growth during the ten year planning period between 1975 and 1985. A range is used for future population estimates for the Town assuming that Alliance is now, and will continue to be, a proportion of the County as far as population is concerned. The use of a range for population estimates has the benefit of using, for

examples, the low end of the range for revenue estimates in order not to appropriate funds which will not be available, while using the high end of the range for needed services in order to insure available services in case of a population surge. It is also necessary to realize that as estimates are made farther in the future they tend to lose validity. However, estimates are provided for the years 1980, 1985, 1990, 2000, 2025.

Future Population Estimates

	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>2000</u>	<u>2025</u>
Alliance	518-579	493-579	469-579	396-579	384-579
Mean	549	536	524	488	482

Source: North Carolina Department of Administration

Existing Land Use

The Town of Alliance has approximately 1,098.26 acres within its corporate limits. The majority of the area is either undeveloped in non-urban uses. Only 13.4 percent of the land area of the Town is developed in urban uses. The 147.36 acres of urban land is divided into four categories: Residential, Service, Government and Institutional and Transportation, Communication and Utilities.

<u>Land Use Types</u>	<u>Acres</u>	<u>Percent</u>
Residential	117.21	79.5
Service	13.96	9.5
Government & Institutional	15.79	10.7
Transportation, Communication & Utilities	<u>.40</u>	<u>.3</u>
	147.36	100.0
Non-Urban Land Use	950.90	

The largest acreage of developed land is classified as resi-

dential. The 1970 census indicates that there are 184 housing units existing in Alliance. The lack of appreciable population increase since the 1970 census would substantiate the belief that this figure has not changed significantly. Residential development is stripped along Highway 55 as well as rural roads 1347 and 1348. There are also several subdivided tracts in the Town. Services are mainly scattered along Highway 55. Government and institutional uses consist mainly of Pamlico Technical Institute and County School Bus facilities. The utilities classification has one small site on which Carolina Power and Light Company has a transformer.

Generally land use is mixed with the heaviest concentrations of development along Highway 55.

Current Plans, Policies, and Regulations

The Town of Alliance is participating in a 201 Facility Plan along with Bayboro and several other towns in the County. Alliance has signed a resolution which allows the County to enforce its building, plumbing, electrical codes, zoning and subdivision regulations within the town limits.

Federal and state regulations affecting Alliance's jurisdiction are the same as those affecting Pamlico County and for specific information, the County Land Development Plan should be contacted.

Land Potential

Physical Limitations - Alliance has one main category defined as hazard areas, that being coastal flood plains. Portions of the

Town would be subject to flooding as water is backed up along the south prong of the Bay River during severe storms. Development would not be disrupted although eventually steps must be taken to prevent flood damage to future development.

Soil Limitations - The soils found in and around Alliance have a wide range in limitations varying from no limitation to urban uses to severe limitations. The Town has five categories of soil associations: the Lenoir-Craven Association, the Leaf-Bayboro Association, the Portsmouth-Torhunta Association, the Kenansville-Dragston Association, and Tidal Marsh Association. Most of these associations have severe limitations due to slow percolation rates and high water tables except the Kenansville-Dragston Association due to the high content of sand.

Source of Water Supply - The Town of Alliance presently receives all of its water supply from domestic wells. The majority of these wells penetrate the Castel Hayne Aquifer and provide adequate water supply for domestic use. In some cases water from these wells has an unpleasant odor and taste due to chemicals present in the water. The Town should consider a joint venture with Bayboro and Stonewall to provide a cooperative water system between the three towns when it is determined to be feasible.

Steep Slope - There are no areas within the Town of Alliance that could be considered to have steep slopes. The elevation is approximately 15 feet mean sea level and varies only slightly from this figure throughout the Town.

Fragile Areas - There are no areas within the Town that are classified as fragile areas. Marshlands which are commonly found along the rivers and creeks in Pamlico County do not extend as far west as Alliance along the Bay River.

Areas of Resource Potential - Alliance does not possess any areas which should be classified as prime resource areas, even though a large portion of the Town's incorporated area is undeveloped when considering urban uses. These areas are not unique to the general area or at a scale which would warrant inclusion into a resource potential classification.

Capacity of Community Facilities

Road System: The road system in Alliance acts basically as a secondary and tertiary system although traffic moving east and west passes through Alliance along Highway 55. Congestion is not a major problem along the primary highway nor along secondary roads serving minor residential development as well as areas outside the town limits.

Schools: The Town of Alliance does not have any schools within the town limits. The Town is served by a countywide system with the children being bused to schools in other parts of the County. The schools in Bayboro and Stonewall are quite accessible to Alliance.

Water and Sewer Treatment Plant: There are no treatment facilities presently existing in Alliance. The residents are served by domestic wells and septic tanks.

Estimated Demand

Ten-Year Population Estimates: The Town of Alliance had a 1970 population of 577 persons making it too small for the Department of Administration to maintain records or make meaningful population projections. Estimates were made using a range and basing this on the assumption that the Town is proportionate to the County when considering population and this proportion will be maintained.

The 1985 population estimates for Alliance indicate a possible range of population between 493 and 579 with a mean population of 536 persons. This would indicate a minor decrease in the population for the Town which is in line with the projections for the County. The decrease would not have to occur if steps are taken to attract industry in order to provide employment in this area of the County. This area is a prime location for industrial development which is necessary for future growth.

Community Facility Demands

The Town of Alliance is in need of most community facilities such as a water and sewer system, more recreational activities and improved police and fire protection. Though the Town is not projected to grow during the ten year planning period the need for community facilities exists in order to serve those persons presently living in the Town. It will also be necessary if growth is to occur to use services as an enticement for development.

Goals

Goals for the Town of Alliance were established through direct

citizen input in the form of public meetings and response to a questionnaire distributed throughout the County. The Town Council, Advisory Board, County Planning Board, and County Commissioners formalized these goals and are as follows:

Goal: Develop adequate employment opportunities and prevent further out-migration of young adults from the Town.

Objectives: Establish selective industrial sites with needed facilities along Highway 55 and the railroad.

-- Diversify economy by attracting new jobs in manufacturing through active recruitment and possible coordination with the County for forming an active industrial development commission.

-- Establish a water system or connect with the system being established in Bayboro.

Goal: Protect shellfish and other marine habitat from man-made pollutants.

Objectives: Encourage a municipal water system and sewage disposal system and the 201 Planning Program.

Goal: Protect the Town from future mixing of incompatible land uses.

Objectives: Utilize county regulations to promote planned growth and development.

Goal: To increase recreational opportunities for all age groups of the Town.

Objectives: Support and participate in the County recreation commission and program.

- Actively seek grants and funds in cooperation with the County and Town of Bayboro for developing recreation sites.

There are major goals and objectives as established by the Town of Alliance and are felt to be reasonable. These areas are felt to be important to the future of Alliance. There should be no problem in accomplishing these goals during the ten year planning period and should not only accommodate those residents presently in Alliance but also be beneficial if new development is to be attracted.

ARAPAHOE

Introduction

The Town of Arapahoe is located in southern Pamlico County. Arapahoe is one of the few landlocked towns located in Pamlico County. The Town is served by Highway 306 which bisects the Town. There are no railroad facilities serving Arapahoe. Arapahoe is a small community of 212 persons as indicated by the 1970 census and is mainly developed in residential uses and services acting as a center for agricultural activity in the area.

Arapahoe is somewhat a unique area as far as topography is concerned in that the Town is situated on an old dune ridge and varies in elevation some twenty feet from a high of approximately 40 feet in the west of Town to approximately 20 feet at the eastern edge of Town. The Town is relatively free of coastal flooding due to its location.

Population

The population of Arapahoe has shown practically a steady decline during the past 30 years with the largest decrease occurring between 1960 and 1970.

<u>Year</u>	<u>Population</u>
1940	307
1950	273
1960	274
1970	212

The population for the Town is expected not to vary substantially from the Present trend, and there is no increase seen dur-

ing the ten-year planning between 1975 and 1985. It is necessary in order to better analyze the population characteristics of Arapahoe to break down the overall population into various categories.

The racial composition of Arapahoe is almost exclusively white with 207 persons or 97.6 percent of the population, as compared to a non-white population of 5 persons or 2.4 percent of the population.

Another consideration when studying the population of a town is the age and sexual makeup of the population. The population of Arapahoe is distributed fairly evenly by age groups. The sexual composition is also evenly divided with only 6 more females than males. There are a 103 males or 48.6 percent of the population as compared to 109 females or 51.4 percent of the population.

<u>Age</u>	<u>Male</u>	<u>Female</u>
Under 5	8	5
5	0	2
6	2	1
7-9	6	3
10-13	10	5
14	1	2
15	0	0
16	1	5
17	3	0
18	3	5
19	1	0
20	2	1
21	0	1
22-24	4	3
25-34	13	10
35-44	5	13
45-54	21	16
55-59	3	7
60-61	4	4
62-64	3	4
65-74	8	13
75 & Over	5	9
TOTAL	103	109

Future Population

The Town of Arapahoe should continue its present trend of decrease in population during the ten-year planning period 1975-1985. There is not much likelihood of industry locating in or around Arapahoe and the Town must compete with Minnesott Beach for resort type development.

In developing an estimated population for Arapahoe a range was used assuming that the Town is now, and will continue to be, an integral part of the County and would follow the same patterns of increase or decrease in population as would the County. The use of a range for population estimates has the benefit of using, for example, the low end of the range for revenue estimates in order not to appropriate funds which will not be available, while using the high end of the range for service needs in order to insure their availability in case of sudden unexpected population increases. It is also necessary to realize that as estimates are made further into the future they tend to become less valid; however, for the purposes of this plan estimates are made for the year 1980, 1985, 1990, 2000, and 2025.

Future Population Estimates

	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>2000</u>	<u>2025</u>
Arapahoe	190-213	181-213	172-213	145-213	140-213
Mean	202	197	193	179	176

Source: N. C. Department of Administration

Existing Land Use

The Town of Arapahoe has approximately 336.8 acres within its corporate limits. The majority of the area is either undeveloped or developed in non-urban uses. Approximately 33 percent of the

land area of the Town is developed in urban uses. That 33 percent of the Town's corporate limits or 111.03 acres is divided into three categories: Residential, Service, and Government and Institutional.

<u>Land Use Types</u>	<u>Acres</u>	<u>Percent</u>
Residential	89.44	80.5
Service	9.29	8.4
Government & Institutional	<u>12.30</u>	<u>11.1</u>
Total Urban Land Use	111.03	100.0
Non-Urban Land Use	225.77	

The largest acreage of developed land is classified as residential. The 1970 census indicates that there are 78 housing units existing in Arapahoe. The population has not varied a great deal from the 1970 figure therefore the housing figure seems to be fairly accurate. Most of the residential development is stripped along Highway 306 which is the major north-south highway which bisects Arapahoe.

Arapahoe has less than 10 percent of its urban land use categorized as service. These lands are scattered throughout the Town, intermixed with other land uses.

Government and institutional lands occupy the second largest category of lands in Arapahoe with 12.30 acres consisting of a county school site west of Highway 306.

Generally, land use is mixed with the heaviest concentrations of development along Highway 306 as well as rural roads 1102 and 1117.

Current Plans, Policies, and Regulations

The Town of Arapahoe has signed a resolution which allows the County to enforce its building, plumbing, electrical codes, zoning and subdivision regulations within the town limits. The Town does not participate presently under the county zoning ordinance.

Federal and state regulations affecting Arapahoe's jurisdiction are the same as those affecting Pamlico County and for specific information, the County Land Development Plan should be contacted.

Land Potential

Physical Limitations - The Town of Arapahoe does not have any areas within the corporate limits that could be classified as hazard areas physically limiting potential development. The Town is not subject to coastal flooding due to its location along a former dune line, and erosion is not a major problem due to the lack of major water courses and slope within or adjacent to the Town.

Soil Limitations - There are two soil associations found within the Town of Arapahoe and they vary from moderate to severe limitations in the Leon-Lynn Haven Association, to none to slight limitations in the Kenansville-Dragston Association which consists of fine sand which has minor limitations for urban use. Both associations have seasonally high water tables which provide some limitation to the use of septic tanks.

Source of Water Supply - The Town of Arapahoe presently re-

ceives all of its water supply from domestic wells. The majority of these wells penetrate the Castle Hayne aquifer and provide adequate water supply for domestic use. In some cases water from these wells has an unpleasant odor and taste due to chemicals present in the water. It may be advantageous in the future for the Town of Arapahoe to reach an agreement with the Town of Minnesott Beach to join onto their water system.

Steep Slope - There are no areas within the Town of Arapahoe that could be considered to have steep slopes. The Town does have a good deal of relief sloping from west to east with a decrease in elevation of approximately 20 feet. This gradual slope could by no means be considered steep.

Fragile Areas - There are no areas within the Town of Arapahoe that classify as fragile areas. The Town is somewhat unique in this regard to other Towns in Pamlico County.

Areas of Resource Potential - Arapahoe does not possess any areas which should be classified as prime resource areas. Though a large portion of the Town's incorporated area is undeveloped when considering urban uses, these areas are not unique to the general area or at a scale which would warrant inclusion into a resource potential classification.

Capacity of Community Facilities

Road System: The Town's road system is comprised almost entirely of rural roads merging in Arapahoe with Highway 306. Congestion is not a major problem considering traffic traveling from the west and north to Minnesott Beach and the ferry crossing the

Neuse River.

Schools: The Town of Arapahoe is a part of the Pamlico County School System. There is one elementary school facility located in the Town. The children from Arapahoe must be bused to Bayboro and Stonewall to attend junior and senior high schools. The elementary school within the Town also receives students from throughout the county and serves the entire southern portion of the County.

Water and Sewer Treatment Plant: There are no treatment facilities which presently exist in Arapahoe. The residents are served by domestic wells for water supply and septic tanks for sewage disposal.

Estimated Demand

Ten-Year Population Estimates: The Town of Arapahoe had a 1970 population of 212 persons making it too small for the Department of Administration to maintain records or make meaningful population projections. Estimates were made using a range and basing this on the assumption that Arapahoe will remain a certain proportion of Pamlico County.

The 1985 population estimates for Arapahoe indicate a possible range of population between 181-213 with a mean population of 197 persons. This would indicate a minor decrease in population for the Town which is in line with the projections for the County. Arapahoe is not attractive to either industrial or recreational development. Much effort is needed if Arapahoe is to reverse the present trend of losing population.

Community Facility Demands

The Town of Arapahoe is in need of most community facilities.

The Town is not projected to increase in population during the ten year planning period between 1975-1985 and presently the Town lacks sufficient population to afford expensive services. It will be necessary, in order to secure needed facilities for existing as well as future population, to cooperate fully with the County and the adjoining Town of Minnesott Beach for the mutual benefit of all. Otherwise the cost of most community facilities would be such that it would not be economical to the citizens of Arapahoe.

Goals

Goals for the Town of Arapahoe were established through direct citizen input in the form of public meetings and response to a questionnaire distributed throughout the County. The Planning Board, Advisory Board, and Commissioners formalized these goals and submitted them to the town board for their approval.

Goal: Develop adequate employment opportunities and prevent further out-migration of young adults from the Town.

Objectives: Support the construction of a bridge spanning the Neuse River from Minnesott Deach to Cherry Point and Craven County in order to allow better access to the Town.

-- Support the County in obtaining limited desirable industry for appropriate locations.

Goal: Protect shellfish and other marine habitat from man-made pollutants.

Objectives: Encourage a municipal water system and sewage dis-

posal system in conjunction with the County and Minnesott Beach,

- Discourage any type of development that is not consistent with the area and is detrimental to the environment through utilization of County, State, and Federal Regulations.

Goal: Protect the Town from future mixing of incompatible land uses.

Objectives: Utilize county regulations for such purposes.

Goal: To protect and promote utilization of desirable agricultural lands.

Objectives: Utilize county, state, and federal regulations to insure that agricultural lands are protected.

- Promote and utilize the expertise available within the County for such purposes - such as the Agricultural Extension Agent and the Soil Conservation Service.

These are major goals and objectives as established and are necessary if Arapahoe is to provide an improved living environment for the residents of the Town.

BAYBORO

Introduction

Bayboro, the county seat, is situated in the north central section of the County in Township III and along the headwater of the Bay River. It is bordered to the north by the Bay City Pocosin, to the south and east by the Bay River, and west by the Town of Alliance. Bayboro is served by Highway 55 and a spur-line of Norfolk-Southern Railroad that terminates there. Bayboro has the largest year-round population of all municipalities in the County and serves a large agricultural area. Being the county seat, it also is the governmental center for the County.

Population

The population of Bayboro has fluctuated over the years; however, slow growth has occurred.

<u>Year</u>	<u>Population</u>
1910	370
1920	349
1930	468
1940	428
1950	453
1960	545
1970	665

The racial composition of Bayboro is predominantly white, 448, with 177 black. Breakdown by sex shows that women out-number men 356 to 309.

<u>Age</u>	<u>Male</u>	<u>Female</u>
Under 5	27	22
5	11	4
6	5	4
7-9	19	22
10-13	31	31
14	8	7
15	10	8
16	11	14
17	7	7
18	7	6
19	1	3
20	3	4
21	2	8
22-24	9	14
25-34	28	35
35-44	45	51
45-54	29	33
55-59	16	14
60-61	6	9
62-64	19	20
65-74	18	21
75 & Over	7	19
TOTAL	309	356

Future Population

The Town of Bayboro is not expected to show gains in population over the next ten year period 1975-1985. However, the operations of companies such as Texas Gulf Sulphur and North Carolina Phosphate could cause unforeseen growth to occur. Range is used for population estimates assuming that the Town will grow proportionately with the County. The use of a range for population estimates has the benefit of using, for example, the low end of the range for revenue estimates in order not to approximate funds which will not be available, while using the high end of the range for needed services in order to ensure available services in case of a population surge. It is also necessary to realize that as estimates are made further in the future, they tend to lose validity. However, estimates are provided for the years 1980, 1985, 1990, 2000, and 2025.

Future Population Estimates

	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>2000</u>	<u>2025</u>
Bayboro	597-670	569-670	541-670	456-670	442-670
Mean	634	620	606	563	556

Source: North Carolina Department of Administration

Existing Land Use

The Town of Bayboro has approximately 364.37 acres within its corporate limits.

Its urban land uses are broken down into the following categories:

<u>Land Use Types</u>	<u>Acres</u>
Residential	107.25
Commercial	21.67
Government & Institutional	49.95
Cultural, Entertainment & Recreational	1.47
Undeveloped	184.03

The greatest amount of land developed in an urban land class is residential. The 1970 census indicates that 219 housing units exist in Bayboro. The lack of appreciable population increase since the 1970 census would substantiate the belief that this figure has not changed significantly. The majority of residential development is located along streets running perpendicular and parallel to Highway 55 on the south side of Town. There is also residential development along Highway 55 and the northeastern section of Town.

Commercial land use activities are found stripped along Highway 55 intermixed with government and institutional as well as residential land uses. Bayboro has 1.47 acres of cultural, entertainment and recreation.

Current Plans, Policies, and Regulations

The Town of Bayboro is participating in a 201 facility plan

for wastewater treatment and is in the implementation stage of a water plan. Bayboro has signed a resolution which allows the County to enforce its building, plumbing, electrical codes, zoning and subdivision regulations within the town limits.

Federal and state regulations affecting Bayboro's jurisdiction are the same as those affecting Pamlico County and for specific information, the County Land Development Plan should be contacted.

Land Potential

Physical Limitations - Bayboro, lying east of the beach ridge running north and south of Grantsboro has a relatively low elevation from 14' to 16'. Natural drainage occurs slowly because of the level characteristics of the terrain. The lower parts of Bayboro have been flooded due to easterly winds which backed up the water into the Town and because the terrain is so level. This occurred during severe hurricanes and poses certain development problems which can be overcome by elevating the buildings or conducting other flood preventive measures.

Soils - The predominant soil classifications in Bayboro are: Lenoir-Craven Association, Leaf-Bayboro Association, Kenansville-Dragston Association, and the Tidal Marsh Association.

The soils in Bayboro range from well drained to poorly drained. The majority of the soils; however, are poorly drained with moderate to severe limitations for urban usage. More detailed information is provided by the Soil Conservation Service, U.S. Department of Agriculture, New Bern, North Carolina.

Sources of Water Supply - Bayboro is in the process of acquiring a municipal water system. Two wells have been drilled at a depth of 274 feet extending into the Castel Hayne aquifer. The wells are located along Highway 55 in Bayboro behind the First Citizens Bank. The wells capacity are 100 gallons per minute. On the same site with the wells is an elevated storage tank. The storage tank has an elevation of 100 feet and a capacity of 100,000 gallons. An on-site treatment plant will have a capacity of 100 gallons per minute and can be duplicated. A softening and aeration plant will be included in Bayboro's water plant.

Steep Slope - Bayboro has no areas with steep slopes. The elevation is approximately 14 to 16 feet. The Town slopes very gently toward the southeast. Slope does not seem to be a problem in Bayboro.

Fragile Areas - There are some fragile areas within the corporate limits of Bayboro. These are the tidal marsh areas found along the Town's boundaries around the north and south prong of the Bay River. The areas are not generally threatened by development and most are buffered by agricultural lands from Bayboro's urban area.

Areas with Resource Potential - Bayboro does not possess any areas which should be classified as prime resource areas. Though a large percentage of the corporate area of Bayboro is used for agricultural and forestry production, these uses are neither unique to the general area or at a scale which would warrant inclusion into a resource potential classification.

Capacity of Community Facilities

Road System: The road system in Bayboro is designed basically to act as a secondary and tertiary system, although traffic traveling east must pass through Bayboro along Highways 55 and 304. Congestion is not a major problem along major highways nor is it a problem along residential streets which are layed out in no particular order.

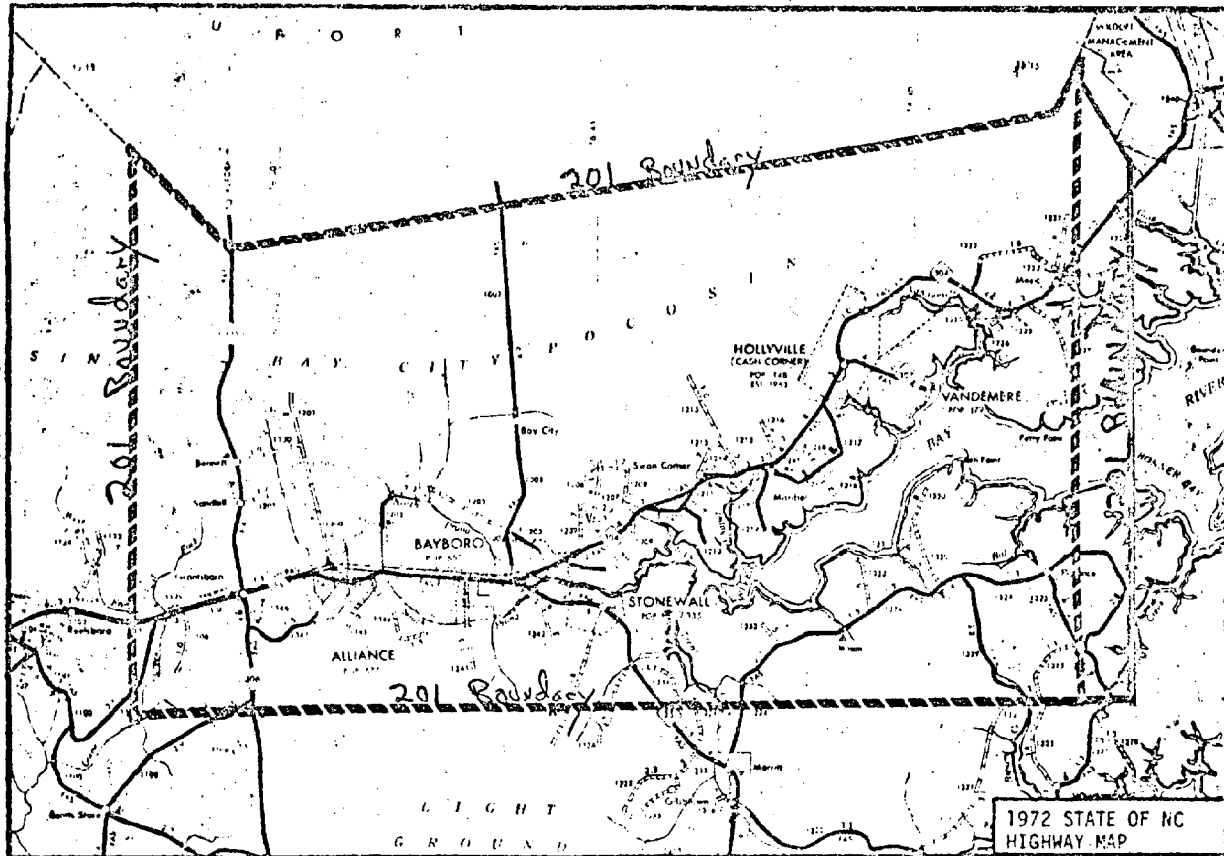
Schools: The Town of Bayboro is a part of the Pamlico County school system. There are two schools within Bayboro, the County's only high school and one of the County's elementary schools. Since these schools serve not only Bayboro but other portions of the County, the design, capacity, and utilization, will be dealt with in the county plan.

Water and Sewer Treatment Plant: The Town of Bayboro has no treatment plant presently although a water system is in the implementation phase. An on-site water treatment plant with a 100 gallon per minute capacity will be able to be duplicated if necessary. A softening and aeration plant will be included in Bayboro's water plant. The Town has no sewage facilities at the present time; however, it is the Lead Agency for the 201 Planning Program. Within the next three or four years it should be the first municipality within Pamlico County to have a sewage treatment system. The 201 Facilities Planning Area Map is found on the next page.

Estimated Demand

Ten-Year Population Estimates - The Town of Bayboro had a 1970 population of 665 persons making it too small for the Depart-

RAYBORO FACILITY PLANNING AREA



FOLLOW

Pamlico/Beaufort Co Line East

Long 76° 37.5' South

Lat 35° 7' West

Long 76° 52.5' North

FROM

Int. Pamlico/Beaufort Co
Line and Long 76° 52.5'

Pamlico/Beaufort Co Line

Long 76° 37.5'

Lat 35° 7'

TO

Long 76° 37.5'

Lat 35° 7'

Long 76° 52.5'

Point of Beginning

ment of Administration to maintain records or make any meaningful population projections. In order to obtain projections for the Town it was assumed that the population of Bayboro is now, and would remain, a proportion of the total Pamlico County population which was available from the Department of Administration. By determining the 1970 percentage of population that Bayboro represented of the County as a whole, projections could then be made as to the future population of the Town.

The 1985 population estimates for Bayboro indicate a possible range of population between 569 and 670 with a mean of 619. This would indicate a minor decrease in population for the Town which is in line with projections for the County. However, other factors may enter into the picture since Bayboro is developing a water system. It has a railroad and would be a prime area in the County for development, and it is the county seat.

As long as Bayboro remains a rural service center for agricultural activities a major decrease in population should not occur. Bayboro is expected to maintain its approximate population due to its location and the fact that it is the major service center for the County. It is also located and situated so as to serve as a "bedroom community" for commuters to other areas such as the Texas Gulf Phosphate Plant near Aurora in Beaufort County.

Community Facility Demands

The Town of Bayboro is in need of improvements in most of its community facilities as is most towns of its size. The completion of the Town's new water system will be a step in this direction. Though Bayboro is not projected to increase in popula-

tion during the planning period, steps should be taken to improve those community facilities serving the present population.

Goals

Goals for the Town of Bayboro were established through direct citizen input in the form of public meetings and response to a questionnaire distributed throughout the County. The Planning Board, Advisory Board, and Board of Commissioners, formalized these goals.

Goal: Encourage industrial development in the area.

Objectives: Complete the water system and expand as necessary.

- Actively solicit the location of selective industry to the area.
- Form and support an active industrial development commission.

Goal: Secure a public sewage disposal system.

Objectives: Complete the Phase I, II, and III of the 201 Planning Program.

- Attempt to secure any funds and grants for purposes of providing sewage disposal service or expanding systems.

Goal: Develop more recreation facilities and activities.

Objectives: Utilize and participate in the County Recreation Commission and Program.

- Work with the County and surrounding incorporated areas to develop recreation sites and facilities.
- Utilize school grounds and facilities for maximum benefit.

These are major goals and objectives as established and are necessary if Bayboro is to offer necessary service to those residents presently living in the Town as well as attracting additional development.

MESIC

Introduction

The Town of Mesic is located at the head of Bear Creek although the incorporated limits spread all the way to the Bay River. Mesic is the northeastern most incorporated municipality in Pamlico County. The Town is served by Highway 304 which bisects the Town and extending northeastward to the end of the County. There is no rail service to Mesic and only small boats are able to travel Bear Creek. The Town consists primarily of residential development.

The topography of the Town is similar to most of eastern North Carolina in that it is relatively flat. The elevation is approximately five feet mean sea level and the entire town would be subject to inundation during major storms.

Population

The 1970 census shows that Mesic had a population of 369. There are no Enumeration District records on age or sexual breakdowns for the population. The only information available concerning population is the 1970 population. Revenue sharing records for July 1, 1973 show a population of 368. If proportions in other towns can be compared to Mesic, the distribution by age is fairly even and the sexual distribution is somewhat weighted toward the female.

Future Population

The Town of Mesic should not experience any significant growth during the ten year period between 1975 and 1985. A range

is used for population estimates assuming that Mesic will maintain a similar proportion of the County's population that it presently has. The use of a range for population estimates has the benefit of using, for example, the low end of the range for revenue estimates in order not to appropriate funds which will not be available while using the high end of the range for needed services in order to insure available services in case of a population surge. It is also necessary to realize that as estimates are made farther in the future they tend to lose validity. However, estimates are provided for the years 1980, 1985, 1990, 2000, and 2025.

Future Population Estimates

	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>2000</u>	<u>2025</u>
Mesic	382-426	364-426	345-426	292-426	283-426
Mean	404	395	386	359	355

Source: North Carolina Department of Administration

Existing Land Use

The Town of Mesic has approximately 5,684 acres within its corporate limits. The vast majority of the land is either undeveloped or developed in non-urban uses. Only 2.1 percent of the land area of the Town is developed in urban uses. The 121.0 acres of urban land is divided into four categories: Residential, Service, Industrial, and Government and Institutional.

<u>Land Use Types</u>	<u>Acres</u>	<u>Percent</u>
Residential	4.8	3.97
Service	1.0	.83
Industrial	7.0	5.78
Government & Institutional	<u>108.2</u>	<u>89.42</u>
Total Urban Land Use	121.0	100.00
Non-Urban Land Use	5,563.0	

The largest acreage of developed land is classified as residential. The majority of development is located along Highway 304. There has not been any substantial amount of development due to the Town although population increases may be deceiving due to the heavy emphasis placed on annexation.

These uses classified as services are of minor significance and are scattered mainly along Highway 304 intermixed with the other uses.

The industrial classification consists of one site which is used as a seafood processing establishment.

The government and institutional classification consists of various parcels of property primarily owned by the Town itself.

Generally, land use is mixed with heavy concentrations of development along Highway 304 and to a lesser extent along rural road 1222.

Current Plans, Policies and Regulations

The Town of Mesic has signed a resolution which allows the County to enforce its building, plumbing, electrical codes and subdivision regulations within the town limits. The Town does not presently participate under the county zoning ordinance.

Federal and state regulations affecting Mesic's jurisdiction are the same as those affecting Pamlico County and for specific information, the County Land Development Plan should be contacted.

Land Potential

Physical Limitations - The Town of Mesic has one category

of hazard areas within the Town which are areas of erosion. Erosion along the Bay River poses some problems, especially during severe storms. Coastal flooding is a problem due to the lack of elevation in the Town. The small amount of development that would occur in this area must follow Housing and Urban Development regulations to obtain flood insurance to prevent damage to future development.

Soil Limitations - The majority of the soils found in and around Mesic have severe limitations to urban uses. There are three major soil associations found within the corporate limits of the Town; the Lenoir-Craven Association, the Leaf-Bayboro Association, and the Tidal Marsh Association. All three associations have slow permeability, a high water table and are subject to coastal flooding. Most of the soils offer severe limitations to a wide range of urban uses.

Steep Slope - There are no areas within the Town of Mesic that could be considered to have steep slopes. The elevation is approximately five feet mean sea level and varies slightly from that figure sloping very gently toward the east.

Fragile Areas - There are some fragile areas within the corporate limits of Mesic in the form of Tidal Marshlands. These areas are located at the eastern end of the Town along Gale Creek. These areas are not generally threatened by urban development and are buffered by agricultural and woodland uses. It will be necessary to take whatever steps necessary to insure that these areas maintain the ability to perform their natural

function.

Areas with Resource Potential - Mesic does not possess any areas which should be classified as prime resource areas. It is felt that even though a very large amount of the Town's corporate limits performs uses other than urban oriented, that they should not be classified as such within the Town but be dealt with county-wide.

Capacity of Community Facilities

Road System: The road system in Mesic acts basically as a secondary and tertiary system primarily although Highway 304 bisects the Town as it moves east toward Hobucken and Lowland. Congestion is not a major problem along highway 304 or the secondary roads within the Town.

Schools: The Town of Mesic is a part of the Pamlico school system. There are no school facilities within Mesic or to the east. All children are bused to the schools in Bayboro and Stonewall.

Water and Sewer Treatment Plant: There are no treatment facilities which presently exist in Mesic. The residents are served by domestic wells for water supply and septic tanks for sewage disposal. The lack of a central water and sewer system is a problem due to the lack of elevation and the high water table.

Estimated Demand

Ten-Year Population Estimates - The Town of Mesic has an estimated 1975 population of 425 persons and is too small for the

Department of Administration to maintain records or make meaningful population projections. Estimates were made using a range and basing this on that assumption that Mesic will remain proportionate to the County when considering population.

The 1985 population estimates for Mesic indicate a possible range of population between 364 and 426 with a mean population of 395. This would indicate a decrease in population for the Town which would be in line with the population estimates for the County. This decrease in population will be difficult to alter due to the site and situation of the Town and the lack of services and job opportunities in the immediate area.

Community Facility Demands

The Town of Mesic is in need of most community facilities. The Town is not projected to increase in population during the ten-year planning period between 1975 and 1985. The present population of the Town is somewhat dispersed which would make it difficult and expensive to furnish most community facilities to the existing residents. Some type of joint venture may be necessary between populated areas of Mesic and other populated areas of this portion of the County such as Vandemere if certain needed services are to be obtained. Otherwise the cost of facilities such as sewer and water systems which are very much needed would be too expensive and impractical. The Town should also attempt to work closely with the County for services such as law enforcement and fire protection.

Goals

Goals for the Town of Mesic were established through direct

citizen input in the form of public meetings and response to a questionnaire distributed throughout the County. The Planning Board, Advisory Board, and citizens formalized these goals and submitted them to the Town Board for approval.

Goal: Develop adequate employment opportunities and prevent further out-migration of young adults from the Town.

Objectives: Improve the local agricultural industry through the wise management of agricultural lands.

-- Assist the County in attempting to locate acceptable industry in areas of the County that are suitable.

Goal: Protect shellfish and other marine habitat from man-made pollutants.

Objectives: Prevent the development of any potential polluting sources through utilization of county regulations.

Goal: Protect the Town from future mixing of incompatible land uses.

Objectives: Utilize the County regulations for regulated development.

These are major goals and objectives as established and are necessary if Mesic is to provide an improved living environment for the residents of the Town.

MINNESOTT BEACH

Introduction

The Town of Minnesott Beach is located on the southern most point of Pamlico County. The Town is located on the Neuse River and is primarily a beach community with minimal year-round population. Minnesott Beach is served by Highway 306 which terminates in Minnesott Beach. There is a ferry which crosses the Neuse at Minnesott; however, the crossing is time consuming and subject to cancellation during severe weather conditions. As previously mentioned, Minnesott is a beach community with a year around population of approximately 90 persons with the main development consisting of residential uses although the Town is oriented heavily toward recreation.

The topography of the Town is somewhat uncharacteristic to eastern North Carolina due to its location on a high sandy bank. There is also a good deal of relief throughout the Town, especially along the creeks dissecting the area. The majority of the Town would not be subject to inundation during coastal flooding.

Population

Minnesott Beach was not incorporated until after the 1970 census was completed. Therefore, no previous population records exist. There are also no Enumeration District records on age or sexual breakdowns for the population. The only information available concerning population is the 1970 census population of 41 full time residents and revenue sharing figures for July 1, 1973 showing 43 residents. If proportions in other towns can be com-

pared to Minnesott Beach, the distribution by age is fairly even and the sexual distribution is somewhat weighted toward the female.

Future Population

Although the Town of Minnesott Beach is projected to lose population during the ten year planning period by the formula used, other factors are involved, such as the development of the golf course including residential lots with central water and the likelihood that sometime in the future a bridge will be constructed across the Neuse River at Minnesott Beach. However, for the sake of making an estimate for future population a range is used rather than a specific figure. The use of a range for population estimates has the benefit of using, for example the low end of the range for revenue estimates in order not to appropriate funds which will not be available, while using the high end of the range for needed services in order to insure available services for surges in population. It is necessary to realize that as estimates are made farther in the future they tend to lose validity; however, estimates are provided for the years 1980, 1985, 1990, 2000, and 2025.

Future Population Estimates

	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>2000</u>	<u>2025</u>
Minnesott Beach	81-90	77-90	73-90	62-90	60-90
Mean	86	84	82	76	75

Source: North Carolina Department of Administration

Existing Land Use

The Town of Minnesott Beach has approximately 635.08 acres within its corporate limits. The majority of the land is unde-

veloped although it tends toward urban uses. Approximately ten percent of the land area of the Town is developed in urban uses. The 66.84 acres of urban land is divided into three categories: Residential, Service, and Government and Institutional.

<u>Land Use Types</u>	<u>Acres</u>	<u>Percent</u>
Residential	63.18	94.5
Service	3.30	4.9
Government & Institutional	<u>.36</u>	<u>.6</u>
Total Urban Land Use	66.84	100.0
Non-Urban Land Use	568.24	

The largest acreage of developed land is classified as residential. The waterfront area on the Neuse River as well as the areas around the golf course are residential. The Town is moving toward more year round residents instead of the summer cottage development of past year.

Those uses classified as services are of minor significance and are located mainly in a cluster on either side of rural road 1123 which bisects the Town.

The government and institutional classification only includes one parcel land of which the Town Hall occupies.

Generally land use is fairly well separated with the service, and government, and institutional classifications clustered together, and residential development along the river and developing around the golf course.

Current Plans, Policies, and Regulations

The Town of Minnesott Beach has signed a resolution which

allows the County to enforce its building, plumbing, electrical codes, zoning and subdivision regulations within the town limits.

Federal and state regulations affecting Minnesott Beach's jurisdiction are the same as those affecting Pamlico County and for specific information, the County Land Development Plan should be contacted.

Land Potential

Physical Limitations: The Town of Minnesott Beach is located on a high bank overlooking the Neuse River and has sufficient elevation not to be subject to inundation by coastal flooding. Due to the Town's location on the Neuse River there would be a tendency for minor erosional activities to take place during severe storms. However, erosion, though a limiting factor, is not thought to have a substantial effect in limiting development in Minnesott Beach.

Soil Limitations: There is primarily one soil association found within the Town of Minnesott Beach. The Kenansville-Dragston Association is made up of very sandy soils which have very slight to moderate limitations to urban uses. Kenansville soils have moderate limitations for intensive traffic while Dragston soils provide moderate limitation to septic tanks.

Source of Water Supply: The Town of Minnesott Beach has within its corporate limits a private water system serving a newly developing portion of the Town. The remainder of the Town is served by domestic wells at present. However, there is an opportunity

for the Town to purchase the existing private system and expand it so as to serve the remaining residents of the Town. Water from domestic wells, in some cases, has an unpleasant taste and odor due to certain minerals in the water. A central water system would eliminate this problem as well as preventing the possibility of contamination from septic tanks.

Steep Slope: Minnesott has several areas along the Neuse River and certain creeks which have somewhat steep slopes due to the elevation above sea level of the Town. These areas are not extensive, and although in some cases the slopes are steep, it is not felt that this will cause any problem to development. It may be advantageous due to the uniqueness of the high banks and the protection the elevation affords against coastal flooding.

Fragile Areas: There are several categories of fragile areas which are eligible for inclusion within Minnesott Beach's jurisdiction. Due to Minnesott Beach's location on the Neuse River naturally the estuarine waters and the beaches will be considered as fragile areas. It will be necessary to protect the beaches and waters of the Neuse River for the public use, as well as providing for the maintenance of clean waters for fish populations.

Tourism is very important to Minnesott Beach and without clean public shorelines and waters the attractiveness of the area will be greatly reduced.

Areas of Resource Potential: There are no areas within the Town of Minnesott Beach which should be classified as prime re-

source areas. The Town does have some lands used for other than urban purposes although not at a scale which would warrant inclusion into the Town's section. Areas within the Town's limits may be considered under the countywide plan.

Capacity of Community Facilities

Road System: The road system of Minnesott Beach acts primarily as a secondary and tertiary system to serve the residential development of the Town. Highway 306 is the major access to the Town; however, it terminates at Minnesott Beach where a ferry is used to shuttle traffic back and forth across the river. The road system is presently adequate to serve the Town and future growth, especially in the country club area.

Schools: The Town of Minnesott Beach is part of the Pamlico County school system. There are no school facilities within the town limits and all children must be bused to other parts of the County such as Arapahoe and Bayboro.

Water and Sewer Treatment Plant: There are no treatment facilities which presently exist in Minnesott Beach. Water is provided either by domestic wells or a private system serving the golf course area. Sewage disposal is provided by septic tanks.

Estimated Demand

Ten-Year Population Estimates - The Town of Minnesott Beach had a 1970 population of 41 persons making it too small for the Department of Administration to maintain records or make meaningful population projections. Estimates were made using a range and basing this on the assumption that Minnesott Beach will retain

the same percentage of the County's population that it presently has.

The 1985 population estimates for Minnesott Beach indicate a possible range of population between 77-90 full time residents. This range has a mean population of 84 persons. This would indicate an increase in population for the Town which is in line with access to the River, the new development presently under way in the Town, and the existence of a water system capable of serving the entire Town.

Community Facility Demand

The Town of Minnesott Beach is in need of most community facilities. Due to the small amount of year around population, it is difficult for the Town to provide adequate services such as fire protection, police protection, water and sewer service, and recreational facilities. The potential for growth is present in Minnesott Beach. It may be necessary to cooperate with the adjacent Town of Arapahoe in order to afford needed services that separately neither could provide.

Goals

Goals for the Town of Minnesott Beach were established through direct citizen input in the form of public meetings and response to a questionnaire distributed throughout the County. The Planning Board, Advisory Board, and citizens formalized these goals and submitted them to the Town Board for their approval.

Goal: Develop adequate employment opportunities and prevent further out-migration of young adults from the Town.

- - -
221

Objectives: Develop tourist industry in the Town and surrounding area through related development and promotional activities.

- To increase year-round recreational opportunities through further development of the country club, parks, and development of a marina.
- Promote the construction of a bridge spanning the Neuse River from Minnesott Beach to allow better access to the Town as well as areas such as Cherry Point which provide potential employment opportunities.

Goal: Protect shellfish and other marine habitat from man-made pollution.

Objectives: Encourage a municipal sewer system.

- Discourage any industrial or other types of development not complimentary to the environment.

Goal: Protect the Town from future mixing of incompatible land uses.

- Encourage development based on a development plan.
- Utilize appropriate regulations to insure such development.

These are major goals and objectives as established and are necessary if Minnesott Beach is to provide an improved living environment for the residents of the Town.

ORIENTAL

Introduction

The Town of Oriental is located in southeastern Pamlico County on the Neuse River. The Town is served by Highway 55 which extends from the north and terminates in Oriental. Kershaw Creek which is used to separate Oriental from lands to the west is now spanned by a bridge making the Town more accessible from the Minnesott Beach area. Oriental is a small retirement community of 445 persons as indicated by the 1970 census and is mainly developed in residential uses.

Oriental has a topography typical to most of eastern North Carolina with a small amount of relief. The elevation of the Town is approximately nine feet mean sea level and slopes slightly toward the Neuse River and Kershaw Creek. The areas are subject to coastal flooding during storm tides.

Population

The population of Oriental has fluctuated somewhat during the past thirty years.

<u>Year</u>	<u>Population</u>
1940	535
1950	590
1960	522
1970	445

The population of the Town is not expected to increase significantly during the ten-year planning period between 1975 and 1985. However, in order to better analyze the population of

Oriental, a more detailed breakdown of the overall population is necessary.

The racial composition of Oriental is weighted heavily toward the white population with 383 white residents or 86.1 percent of the population as compared to 62 non-white residents or 13.9 percent of the population.

Another consideration when studying the population of a town is the age and sexual makeup of the population. The population of Oriental is weighted toward the elderly since the Town is developing toward a retirement community. There are also quite a few more women in the Town than men especially in the elderly portion of the population.

<u>Year</u>	<u>Male</u>	<u>Female</u>
Under 5	11	11
5	--	2
6	--	2
7-9	9	11
10-13	14	12
14	4	3
15	3	5
16	--	11
17	5	6
18	3	2
19	2	5
20	3	2
21	1	1
22-24	4	8
25-34	19	19
35-44	20	21
45-54	31	37
55-59	11	17
60-61	8	7
62-64	4	11
65-74	26	38
75 & Over	14	22
TOTAL	192	253

Future Population

The Town of Oriental should not experience any significant

growth during the ten-year planning period between 1975 and 1985. A range is used for population estimates assuming that the Town of Oriental will remain the same proportion of the County's over-all population as it is now. The use of a range for population estimates has the benefit of using, for example the low end of the range for revenue estimates in order not to appropriate funds which will not be available, while using the high end of the range for needed services in order to insure available services in case of a population surge. It is also necessary to realize that as estimates are made farther in the future they tend to lose validity; however, estimates are provided for the years 1980, 1985, 1990, 2000, and 2025.

Future Population Estimates

	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>2000</u>	<u>2025</u>
Oriental	400-447	381-447	362-447	306-447	296-447
Mean	424	414	405	377	372

Source: North Carolina Department of Administration

Existing Land Use

The Town of Oriental has approximately 562.35 acres within its corporate limits. The majority of the area is undeveloped although in most cases the pressures for urban development are becoming greater and greater. Approximately 25 percent of the land area of the Town is developed in urban uses. The 141.75 acres of urban land use is divided into four categories; Residential, Service, Government and Institutional and Cultural, Entertainment and Recreational.

<u>Land Use Types</u>	<u>Acres</u>	<u>Percent</u>
Residential	119.80	85.0
Service	14.60	10.0
Government & Institutional	2.94	2.0
Cultural, Entertainment & Recreational	<u>4.41</u>	<u>3.0</u>
Total Urban Land Use	141.75	100.0
Non-Urban Land Use	420.60	

The largest acreage of developed land is classified as residential. The 1970 census indicates that there are 223 housing units existing in Oriental. The lack of appreciable population increase since the 1970 census would substantiate the belief that this figure has not changed significantly. Residential development is concentrated mainly in the downtown area and in outlying residential subdivisions.

Service classifications make up the next largest category of land use. These uses are concentrated in the small downtown central business district and along Highway 55.

Government and institutional categories occupy the least amount of urban land in the Town. These uses are scattered throughout the Town in no particular arrangement.

Cultural, entertainment and recreational areas occupy less land area than may be thought, although beach areas were not included in the figure. These areas are also scattered throughout the Town with no particular arrangement.

Generally, the uses of urban lands in Oriental does not conflict to any great extent although uses are mixed. The residential

development is clearly the dominant use in the Town.

Current Plans, Policies, and Regulations

The Town of Oriental has signed a resolution which allows the County to enforce its building, plumbing, electrical codes, zoning and subdivision regulations with the town limits. The Town is one of the two in the County presently under the county's zoning ordinance.

Federal and state regulations affecting Oriental's jurisdiction are the same as those affecting Pamlico County and for specific information, the County Land Development Plan should be contacted.

Land Potential

Physical Limitations: The Town of Oriental has two types of hazard areas. The Town is subject almost completely to inundation by major coastal flooding. The highest elevation in the Town limits is approximately 11 feet mean sea level while the 100-year frequency flood reaches an elevation of approximately 14 feet mean sea level.

The other type of potentially hazardous condition in the area is the erosional activities found along most of Pamlico County's shoreline with the Neuse River. However, Oriental is in an area of the shoreline which does not suffer as severely from the effects of erosion as other areas of the County.

Soil Limitations: There is predominantly only one soil association found within the corporate limits of Oriental. The

Lenoir-Craven Association for the most part has slow to very slow percolation rates with high water tables. Generally the soils have moderate to severe limitations for urban development although there are a few soils in the association without such severe restraints.

Source of Water Supply: The Town of Oriental presently receives all of its water supply from domestic wells. The majority of these wells penetrate the Castle Hayne aquifer and provide an adequate water supply for domestic use. In some cases water from these wells have an unpleasant odor and taste due to chemicals present in the water. Due to the lack of sufficient elevation within the Town to prevent periodic flooding the possibility of contamination of domestic wells is ever present. It would be a great asset for the Town to develop a central water system in order to assure potable water to present as well as possible future population.

Steep Slope: There are no areas within the Town of Oriental that could be considered to have steep slopes. The elevation is approximately nine feet mean sea level and varies only slightly from this figure throughout the Town.

Fragile Areas: There are no areas within the Town that are classified as fragile areas. Even though the elevation of the Town is such that it is subject to periodic flooding there are no areas of marshland.

Areas of Resource Potential: Oriental does not possess any areas which should be classified as prime resource areas. The

Town does have some lands used for other than urban purposes although not at a scale which would warrant inclusion into the Town's plan. Resource potential will be dealt with more thoroughly, countywide, in the Pamlico County Land Development Plan.

Capacity of Community Facilities

Road System: The road system of Oriental acts primarily as a secondary and tertiary system serving mainly the development in the area as well as providing means of egress and ingress for rural development surrounding the Town. Highway 55 terminates at Oriental, although with the construction of the bridge across Kershaw Creek and the connection with rural road 1308, the Town has much better access from the west. The present system of streets is not congested and able to serve existing and probable future development.

Schools: The Town of Oriental is part of the Pamlico County school system. There are no school facilities within the Town limits and all children must be bused to schools as far away as Bayboro.

Water and Sewer Treatment Plant: There are no treatment facilities which presently exist in Oriental. Water is provided by domestic wells and sewage disposal is handled by individual septic tanks. A water system has been proposed for the Town of Oriental at an estimated total cost of \$400,000. The proposed project will provide the Town of Oriental with a central water system which will be designed to serve the Town and surrounding rural areas. The system will include a 75,000 gallon elevated storage tank, two deep wells, water treatment facilities, and

41,000 feet of 8-inch, 6-inch, 4-inch, 3-inch, and 2-inch diameter distribution lines with fire hydrants, valves and fittings.

Estimated Demand

Ten-Year Population Estimates - The Town of Oriental had a 1970 population of 445 persons making it too small for the Department of Administration to maintain records or make meaningful population projections. Estimates were made using a range and basing this on the assumption that the Town has a specific proportion of the County's population and will retain this proportion during the ten-year planning period.

The 1985 population estimates for Oriental indicate a possible range of population between 381 and 447 persons with a mean population of 414. This would indicate a minor decrease in population which would be in line with the estimates for the County. However, other factors may effect the population expectations for Oriental such as the location of the Town with access to the river and its attractiveness to tourists and as a retirement community.

Community Facility Demands

The Town is in need of improvements to most of its community facilities. There is especially a need for water and sewer within the Town, as well as more recreational activities and police protection. The Town has recently constructed a new fire station and town hall facilities which are presently serving the Town. If additional development is to be attracted the community services must be sufficiently expended in order to meet the needs of prospective development.

Goals

Goals for the Town of Oriental were established through direct citizen input in the form of public meetings and response to a questionnaire distributed throughout the County. The Planning Board, Advisory Board, and Board of Commissioners formalized these goals and submitted them to the town board for their approval.

Goal: Develop adequate employment opportunities and prevent further out-migration of young adults from the Town.

Objectives: Develop the tourist industry in the Town and the surrounding area through merchant and local governmental support and activities.

-- Support the construction of a bridge spanning the Neuse River from Minnesott Beach to all better access to Oriental by petitioning the state and appropriate agencies.

Goal: Protect shellfish and other marine habitat from man-made pollution.

Objectives: Encourage the construction of a municipal water and sewer system.

-- Discourage and prevent development of potential polluting sources or industry through utilization of land use regulations.

Goal: To increase the year-round recreational opportunity for residents and tourists.

These are major goals and objectives as established and are necessary if Oriental is to offer necessary service to those residents presently living in the Town as well as attracting additional development.

STONEWALL

Introduction

The Town of Stonewall is located southeast of Bayboro in central Pamlico County. Stonewall is adjacent to the Bay River and is served by Highway 55 which is the primary east-west access for Pamlico County. Stonewall is a small community of 335 persons as indicated by the 1970 census and 334 persons in 1973 as shown by revenue sharing figures. It is mainly developed in residential uses due to the accessibility to Bayboro and Alliance which contain most of the commercial development.

Stonewall has topography typical to most areas in eastern North Carolina. The elevation is approximately ten feet mean sea level and slopes very slightly toward the Bay River. This area is subject to coastal flooding during severe hurricanes.

Population

The population of Stonewall has fluctuated during the past thirty years.

<u>Year</u>	<u>Population</u>
1940	261
1950	274
1960	214
1970	335

The population for the Town is not expected to increase during the ten-year planning period. However, in order to better analyze the population of Stonewall, a more detailed breakdown of the overall population is necessary.

The racial composition of Stonewall is weighted toward the white population with 217 white residents or 64.8 percent of the population as compared to 118 non-white residents or 35.2 percent of the population.

Another consideration when studying the population of a town is the age and sexual makeup of the population. The population of Stonewall is distributed fairly evenly by age groups. The sexual composition of the population shows that there are a few more females in the population with 176 as compared to 159 males.

<u>Year</u>	<u>Male</u>	<u>Female</u>
Under 5	12	7
5	3	4
6	1	3
7-9	10	9
10-13	13	13
14	4	5
15	4	3
16	2	10
17	4	3
18	4	3
19	1	2
20	4	0
21	4	0
22-24	2	6
25-34	17	25
35-44	23	23
45-54	13	15
55-59	8	7
60-61	6	8
62-64	3	12
65-74	18	11
75 & Over	3	7
TOTAL	159	176

Future Population

The Town of Stonewall should not experience any significant growth during the ten-year planning period between 1975-1985. A range is used for population estimates assuming that the Town of

Stonewall is now, and will continue to be, a proportionate to the County as far as population is concerned. The use of a range for population estimates has the benefit of using, for example, the low end of the range for revenue estimates in order not to appropriate funds which will not be available, while using the high end of the range for needed services in order to insure available services in case of a population surge. It is also necessary to realize that as estimates are made farther in the future they tend to lose validity; however, estimates are provided for the years 1980, 1985, 1990, 2000, and 2025.

Future Population Estimates

	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>2000</u>	<u>2025</u>
Stonewall	300-335	286-335	272-335	230-335	222-335
Mean	318	311	304	283	279

Source: North Carolina Department of Administration

Existing Land Use

The Town of Stonewall has approximately 1,121.76 acres within its corporate limits. The majority of the area is either undeveloped or developed in now urban uses. Only 6.6 percent of the land area of the Town is developed in urban uses. The 73.98 acres of urban land use is divided into three categories; Residential, Service, and Government and Institutional.

<u>Land Use Types</u>	<u>Acres</u>	<u>Percent</u>
Residential	34.16	46.5
Service	6.98	9.5
Government & Institutional	<u>32.32</u>	<u>44.0</u>
Total Urban Land Use	73.46	100.0
Non-Urban Land Use	1,048.30	

The largest acreage of developed land is classified as residential. The 1970 census indicates that there are 112 housing units existing in Stonewall. The lack of appreciable population increase since the 1970 census would substantiate the belief that this figure has not changed significantly. Residential development is stripped along Highway 55 mainly with minor areas of development extending to the north and south along state rural roads.

Stonewall has only a minor amount of land area classified as trade. These sites are scattered along Highway 55 intermixed with the existing residential development.

Government and institutional categories occupy almost as much land as residential areas. This is due mainly to the large school site located in the western edge of the Town.

Generally, land use is mixed with the heaviest concentration of development along Highway 55.

Current Plans, Policies, and Regulations

The Town of Stonewall is participating in a 201 facility plan along with Bayboro and several other towns in the County. Stonewall has signed a resolution which allows the County to enforce its building, plumbing, electrical codes, zoning and subdivision regulations within the town limits.

Federal and state regulations affecting Stonewall's jurisdiction are the same as those affecting Pamlico County and for specific information, the County Land Development Plan should be contacted.

Land Potential

Physical Limitations - Stonewall has two categories of hazard areas within the Town. They are flood plains and areas of erosion. Erosion along the Bay River presents some problems especially during severe storms. Coastal flood is a major problem due to the low elevation of the Town. The entire Town is subject to coastal flooding. Development would not be disrupted, although eventually steps must be taken to prevent damage to future development.

Soil Limitations - The majority of the soils found in and around Stonewall have either moderate or severe limitations due to seasonally high water table, slow permeability and possible flooding. The Town has three soils associations, the Lenoir-Craven Association, the Leaf-Bayboro Association and the Tidal Marsh Association. All of these Associations have slow to very slow percolation and high water tables providing, in most cases severe limitations to urban development.

Source of Water Supply - The Town of Stonewall presently receives all of its water supply from domestic wells. The majority of these wells penetrate the Castle Hayne aquifer and provide adequate water supply for domestic use. In some cases water from these wells have an unpleasant odor and taste due to chemicals present in the water. The Town should consider a joint venture with Bayboro and Alliance to provide a cooperative water system between the three towns when it is feasible.

Steep Slope - There are no areas within the Town of Stonewall that could be considered to have steep slopes. The elevation is approximately ten feet mean sea level and varies only slightly from this figure throughout the Town.

Fragile Areas - There does exist within the Town of Stonewall a certain amount of land classified as fragile areas. These are tidal marsh areas found along the Bay River to the north of Stonewall. These areas are not generally threatened by development and most are buffered by agricultural lands from the developed area along Highway 55.

Areas of Resource Potential - Stonewall does not possess any areas which should be classified as prime resource areas. Though a large portion of the Town's incorporated area is undeveloped when considering urban uses, these areas are not unique to the general area or at a scale which would warrant inclusion into a resource potential classification.

Capacity of Community Facilities

Road System: The road system in Stonewall acts basically as a secondary and tertiary system although traffic moving southeast pass through Stonewall on Highway 55. Congestion is not a major problem along the primary highway nor along secondary roads serving minor residential development as well as areas outside the town limits.

Schools: The Town of Stonewall is a part of the Pamlico school system. There is one school facility located in the western portion of the Town which serves as a junior high school for

the County as well as the Town. Since this school serves not only Stonewall but other portions of the County the design capacity and utilization of this facility will be dealt with in the county plan.

Water and Sewer Treatment Plant: There are no treatment facilities which presently exist in Stonewall. The residents are served by domestic wells for water supply and septic tanks for sewage disposal.

Estimated Demand

Ten-Year Population Estimates - The Town of Stonewall had a 1970 population of 335 persons making it too small for the Department of Administration to maintain records or make meaningful population projections. Estimates were made using a range and basing this on the assumption that the Town is proportionate to the County when considering population and will remain so.

The 1985 population estimates for Stonewall indicate a possible range of population between 286 and 335 with a mean population of 311 persons. This would indicate a minor decrease in population for the Town which is in line with the projections for the County. This decrease is seen to be eminent unless unforeseen factors occur such as industrial development within the County which would tend to halt the working age people from leaving to seek employment elsewhere.

Community Facility Demands

The Town is in need of most community facilities such as a water and sewer system, more recreational activities, and better police and fire protection. The Town has recently constructed a

new town hall to serve as an administrative center for the Town. However, additional services must be provided if the Town is to secure additional development.

Goals

Goals for the Town of Stonewall were established through direct citizen input in the form of public meetings and response to a questionnaire distributed throughout the County. The Planning Board, Advisory Board, and Commissioners formalized these goals and submitted them to the town board for their approval.

Goal: Develop adequate employment opportunities and prevent further out-migration of young adults from the Town.

Objectives: Encourage selective industries to locate in Town and neighboring communities such as Bayboro and Alliance.

-- Develop community facilities for the Town and contiguous areas attractive to such industries.

Goal: Improve and create systems of domestic, industrial and commercial water supply.

Objectives: Promote the expansion of the Bayboro system presently being installed.

Goal: Create a modern sewer system.

Objectives: Support and participate in the 201 planning program.

-- Attempt to secure necessary funds.

Goal: Increase recreational opportunities for all age groups of the Town.

~~244~~
244

Objectives: Support the present county recreation commission and programs.

- Work with the County and neighboring towns in developing recreation facilities and sites.

These are major goals and objectives as established and are necessary if Stonewall is to offer necessary service to those residents presently living in the Town as well as attracting additional development.

VANDEMERE

Introduction

The Town of Vandemere is located northeast of the center of the County on the northern side of the Bay River. The major highway serving Vandemere is 307 and terminates within the Town. There is no rail service to the Town; however, accessibility to the Bay River is good for boat or barge transportation. Vandemere is a small community of 379 persons as indicated by the 1970 census and is mainly developed in residential uses.

Vandemere has topography typical to most areas in eastern North Carolina. The elevation is approximately five feet mean sea level and slopes very gradually toward the Bay River to the south of Town. The Town is very much subject to flooding, even during minor coastal storms.

Population

The population of Vandemere has fluctuated somewhat during the past thirty years.

<u>Year</u>	<u>Population</u>
1940	436
1950	475
1960	452
1970	379

The population of the Town is not expected to increase during the ten-year planning period. However, in order to better analyze the population of Vandemere, a more detailed breakdown of the overall population is necessary.

The racial composition of Vandemere is weighted toward the non-white population almost two to one with 130 white residents, or 34.3 percent of the population, as compared to 249 non-white residents, or 65.7 percent of the population.

Another consideration when studying the population of a town is the age and sexual makeup of the population. The population of Vandemere is distributed fairly evenly by age groups with a somewhat large number of children in the 10-13 age group.

The sexual composition of the population is somewhat weighted toward the female population with 200 females as compared to 179 males.

<u>Year</u>	<u>Male</u>	<u>Female</u>
Under 5	14	16
5	3	4
6	1	2
7-9	18	14
10-13	26	24
14	3	5
15	5	5
16	2	5
17	5	5
18	6	4
19	4	2
20	2	8
21	3	2
22-24	3	4
25-34	19	17
35-44	17	23
45-54	12	19
55-59	12	12
60-61	2	1
62-64	5	7
65-74	13	12
75 & Over	4	9
TOTAL	179	200

Future Population

The Town of Vandemere should not experience any significant

growth during the ten-year planning period between 1975 and 1985. A range is used for population estimates assuming that the Town of Vandemere is now, and will continue to be, a proportion of the County's population. The use of a range for population estimates has the benefit of using, for example, the low end of the range for revenue estimates in order not to appropriate funds which will not be available while using the high end of the range for needed services in order to insure available services in case of a population surge. It is also necessary to realize that as estimates are made farther in the future they tend to lose validity; however, estimates are provided for the years 1980, 1985, 1990, 2000, and 2025.

Future Population Estimates

	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>2000</u>	<u>2025</u>
Vandemere	339-379	323-379	307-379	259-379	251-379
Mean	359	351	343	319	315

Source: North Carolina Department of Administration

Existing Land Use

The Town of Vandemere has approximately 970.4 acres within its corporate limits. The vast majority of this land is either undeveloped or developed in non-urban uses. Only 7.0 percent of the land area of the Town is developed in urban uses. The 68.11 acres of urban land is divided into four categories: Residential, Service, Industrial, and Government and Institutional.

<u>Land Use Types</u>	<u>Acres</u>	<u>Percent</u>
Residential	58.97	86.6
Service	.73	1.1
Industrial	6.32	9.3
Government and Institutional	<u>2.09</u>	<u>3.0</u>
Total Urban Land Use	68.11	100.0
Non-Urban Land Use	902.29	

By far the largest acreage of developed land is classified as residential. The 1970 census indicates that there are 121 housing units existing in Vandemere. The lack of appreciable population increase since the 1970 census would indicate that these figures have not changed significantly. Residential development is stripped along Highway 307 which terminates in Vandemere and along residential streets within the Town. Vandemere has only .73 acres classified as service consisting of the minor central business area downtown.

Industrial land comprise 6.32 acres made up of the fishing complex in the northeast corner of the Town.

Government and institutional lands make up 2.09 acres of the urban land use and is intermixed primarily with residential development along Highway 307.

Generally development is separated in that there is a good portion of the Town's residential development located west of the commercially oriented downtown area and away from the major highway.

Current Plans, Policies, and Regulations

The Town of Vandemere has signed a resolution which allows the County to enforce building, plumbing, electrical codes, zoning and

subdivision regulations. The Town is also participating in the County's zoning along with Oriental.

Federal and state regulations affecting Vandemere's jurisdiction are the same as those affecting Pamlico County and for specific information, the County Land Development Plan should be contacted.

Land Potential

Physical Limitations - Vandemere has one category defined as a hazard area that would produce limitation to land use. This category is areas of erosion. Erosion would occur along the shores of the Bay River which forms the southern boundary of the Town.

The Town is approximately five feet above mean sea level and subject to flooding during even minor storms. Development would not be disrupted although eventually steps must be taken to prevent flood damage to future development.

Soil Limitations - There are two soil associations found within the corporate limits of Vandemere. Both have generally moderate to severe limitations to urban uses. The Lenoir-Craven Association is found in the southeast half of the Town along the Bay River while the Leaf-Bayboro Association is found in the northwest half of the Town. Most of the soils in both associations have a seasonally high water table, slow permeability and possible flooding. There are a few soils within the association that have only moderate limitations to urban uses; however, the majority

offers severe limitations and are not advisable for development.

Source of Water Supply - The Town of Vandemere presently receives all of its water supply from domestic wells. The majority of these wells penetrate the Castle Hayne aquifer and provide adequate water supply for domestic use. In some cases water from these wells have an unpleasant odor and taste due to chemicals present in the water. These domestic wells would also be subject to contamination during periods of flooding.

Steep Slopes - There are no areas within the Town of Vandemere that could be considered to have steep slopes. The elevation is approximately five feet mean sea level and varies only slightly from that sloping gradually to the southeast.

Fragile Areas - There are no areas within the Town of Vandemere that are classified as fragile areas. Marshlands which are found to the east and west of Town along the Bay River and its tributaries do not exist along the shoreline which marks Vandemere's town boundaries.

Areas of Resource Potential - Vandemere does not possess any areas which should be classified as prime resource areas. It is felt that even though a very large amount of the Town's corporate limits perform uses other than urban oriented, that they should not be classified as such within the Town but be dealt with county-wide.

Capacity of Community Facilities

Road System: The road system in Vandemere serves only resi-

dents and visitors to the Town since Highway 307 terminates there. The residential streets within the Town are paved and adequate to serve the residents of the Town. Congestion is not a problem as there is no through traffic in the Town.

Schools: The Town of Vandemere is a part of the Pamlico school system. There are no school facilities within Vandemere or to the east of the Town. All children are bused to the schools in Bayboro and Stonewall.

Water and Sewer Treatment Plant: There are no treatment facilities which presently exist in Vandemere. The residents are served by domestic wells for water supply and septic tanks for sewage disposal. The lack of a central water and sewer system is a problem due to the lack of elevation and the high water table.

Estimated Demand

Ten-Year Population Estimates - The Town of Vandemere had a 1970 population of 379 persons and is too small for the Department of Administration to maintain records or make meaningful population projections. Estimates were made using a range and basing this on the assumption that Vandemere will remain proportionate to the County when considering population.

The 1985 population estimates for Vandemere indicate a possible range of population between 323 and 379 with a mean population of 351. This would indicate a decrease in population for the Town which would be in line with the population estimates for the County.

Community Facility Demands

The Town of Vandemere is in need of most community facilities.

The Town is not projected to increase in population during the ten-year planning period between 1975 and 1985.

The residents of the Town live in a fairly compact area; however, with the present population it would be difficult and expensive to furnish most community facilities to the Town. Efforts should be made to establish cooperative facilities and services with other nearby populated areas and the County. Joint ventures of this nature would make it practical and less expensive to furnish some of these needed facilities.

Goals

Goals for the Town of Vandemere were established through direct citizen input in the form of public meetings and response to a questionnaire distributed throughout the County. The Planning Board, Advisory Board, and citizens formalized these goals and submitted them to the town board for approval.

Goal: Develop adequate employment opportunities and prevent further out-migration of young adults from the Town.

Objectives: Develop land sites for potential industries using navigable waterways.

-- Promote opportunities relating to fishing and seafood industries.

Goal: Secure a town water system.

Objectives: Attempt to locate funds and grants for a water system.

Goal: Increase recreational opportunities for all age groups of the Town.

Objectives: Develop water related activities and attempt to obtain a public boat ramp.

Goal: Protect shellfish and other marine habitat from man-made pollution.

Objectives: Cooperate and support the 201 planning area concept for wastewater treatment in which Vandemere is included.

Goal: Develop tourism industry potential from the intra-coastal waterway.

Objectives: Promote the development of a marina and watercraft service areas.

These are major goals and objectives as established and are necessary if Vandemere is to provide an improved living environment for the residents of the Town.

APPENDIX

PAMLICO COUNTY HEALTH DEPARTMENT

RULES AND REGULATIONS

GOVERNING THE

DISPOSAL OF SEWAGE FROM ANY RESIDENCE, PLACE OF BUSINESS

OF PLACE OF PUBLIC ASSEMBLY IN PAMLICO COUNTY

PART I - GENERAL PROVISIONS

For the purpose of carrying out the provisions of Section 160 of Chapter 130 of the General Statutes of North Carolina, the Pamlico County Board of Health hereby adopts the following rules and regulations governing the disposal of sewage from any single or multiple-family residence, place of business or place of public assembly in Pamlico County, North Carolina.

SECTION I - Definitions - For the purpose of these regulations, the following definitions shall apply:

- A. ALLUVIAL SOILS - The term "alluvial soils" shall mean stratified soils without distinct horizons, deposited by flood waters.
- B. APPROVED - The term "approved" shall mean that which has been considered acceptable to the Pamlico County Health Department or the North Carolina Department of Human Resources, Division of Health Services.
- C. APPROVED PRIVY - The term "approved privy" shall mean a fly-tight structure consisting of a pit, floor slab, and seat riser constructed in accordance with Division of Health Services Bulletin No. 454, approved by the State Board of Health July 17, 1958.
- D. APPROVED SEWERAGE SYSTEM - The term "approved sewerage system" shall mean a public, community or institutional sewerage system

for the collection and treatment of sewage or other liquid wastes constructed and operated in compliance with applicable requirements of the State or local agency.

- E. AREAS SUBJECT TO FREQUENT FLOODING - The term "areas subject to frequent flooding" shall mean those areas consisting of alluvial soils, indicating soils deposited from flooding of less than a 10 year frequency.
- F. HORIZON - the term "horizon" shall mean a layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil forming processes.
- G. LOCAL HEALTH DIRECTOR - The term "Local Health Director" shall mean the local health director as defined in Section 3(g), Chapter 130 of the General Statutes of North Carolina, or his authorized representative.
- H. NITRIFICATION FIELD - The term "nitrification field" shall mean the system of nitrification lines or field lateral lines which receive the septic tank effluent.
- I. NITRIFICATION LINES OR FIELD LATERAL LINES - The terms "nitrification lines" or "field lateral lines" shall mean the open-jointed pipe, drain lines, or especially designed porous blocks which receive the septic tank effluent for nitrification, distribution and absorption into the soil beneath the ground surface.
- J. ORGANIC SOILS - The term "organic soils" shall mean those organic mucks and peats consisting of more than 20% organic matter to depths of 18 inches or greater.
- K. PED - The term "ped" shall mean a unit of soil structure such as an aggregate, crumb, prism, block, or granule, formed by

natural processes.

- L. PERCH - The term "perch" shall mean restricting vertical movement of liquids.
- M. PERSON - The term "person" shall mean any individual, firm, association, organization, partnership, business trust, corporation or company.
- N. PLACE OF BUSINESS - The term "place of business" shall mean and include any store, warehouse, manufacturing establishment, place of amusement or recreation, service station, office building, or other places where people work.
- O. PLACE OF PUBLIC ASSEMBLY - The term "place of public assembly" shall mean and include fairgrounds, auditoriums, stadiums, churches, camp grounds, festival grounds, and other places where people assemble.
- P. PRIVY BUILDING - The term "privy building" shall mean and include any and all buildings which are used for affording privacy in acts of urination and defecation which are not connected to a residential septic tank or community type sewerage system.
- Q. RESIDENCE - The term "single or multiple-family residence" shall mean and include any private home, tenant house, hotel, motel, summer camp, labor work camp, mobile home, institution, or places where people reside for any period of time.
- R. SEPTIC TANK - The term "septic tank" shall mean a water-tight, covered receptacle designed and constructed to receive the discharge of sewage from a building sewer; separate settleable and floating solids from the liquid; digest organic matter by anaerobic bacterial action; store digested solids through a period of detention; and allow clarified liquids to discharge

for additional treatment and final disposal.

- S. SEPTIC TANK SYSTEM - The term "septic tank system" shall mean a ground absorption sewage disposal system consisting of a holding or settling tank and a ground absorption field.
- T. SEWAGE - The term "sewage" shall mean the wastewater and its contents from any single or multiple-family residence, place of business, or place of public assembly.
- U. SEWER CONNECTION - The term "sewer connection" shall mean a connection with an approved community or public sewerage system which provides for the collection and disposal of sewage or other liquid wastes.
- V. SITE - The term "site" shall be that area in which the septic tank system is to be located, and the area required to accommodate and permit proper functioning of the system.
- W. SOIL - The term "soil", for the purposes of subsurface sewage disposal, shall mean the unconsolidated mineral and organic material on the land surface. It consists of sand, silt, and clay minerals and variable amounts of organic materials. It exists as natural undisturbed material or as disturbed material (such as cut and fill).
- X. SOIL ABSORPTION SYSTEM - The term "soil absorption system" shall mean a system that utilizes the soil for absorption of treated sewage.
- Y. HEALTH DEPARTMENT - The term "Health Department" shall mean the Pamlico County Health Department or its authorized representative.
- Z. DIVISION OF HEALTH SERVICES - The term "Division of Health Services" shall mean the State Department of Human Resources,

Division of Health Services.

AA. STRUCTURE - The term "structure" (as it relates to soils) shall mean the arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles.

BB. SUBSURFACE DISPOSAL - The term "subsurface disposal" shall mean the process of sewage treatment in which sewage effluent is applied to land by distribution beneath the surface of the ground through open-jointed pipes, approved drains or approved specially designed porous block.

SECTION II - SANITARY SEWAGE DISPOSAL REQUIREMENTS

Every residence, place of business or place of public assembly as defined herein, shall be provided with either an approved number of privies constructed in accordance with the requirements of the Commission for Health Services, a septic tank system constructed in accordance with the provisions of these regulations, or connection to an approved sewer system.

SECTION III - CONSTRUCTION

A. Approved Privy

The "approved privy" shall consist of a pit, floor slab and seat assembly housed in a building which affords privacy and reasonable protection from the weather.

Nothing in these regulations shall prohibit the Division of Health Services or the Health Department from permitting the use of portable toilets at construction sites or at mass gathering events of a temporary nature, provided such use shall be contingent upon the

provision of adequate cleaning and disposal service in accordance with the directions of the Division of Health Services or the Health Department. Under special circumstances where an approved privy, an approved septic tank system, or a connection to an approved sewer system is impossible or impractical, these regulations shall not prohibit the Division of Health Services or Health Department from permitting vault type privies, or mechanical toilet facilities utilizing heat or other means for reducing the toilet contents to an inert or stabilized residue or to an otherwise harmless condition, rendering such contents noninfectious or non-contaminating.

1. The pit shall consist of an excavation at least 42 inches square and 5 feet deep; but in no case shall the depth be such that contamination of ground water will occur.
2. The pit shall be properly curbed to prevent caving. In sandy or loose soil the curb should extend the full depth of the pit. In tight soils partial curbing is acceptable if it prevents caving.
3. The privy floor slab shall be constructed of reinforced concrete as specified in Division of Health Services Bulletin No. 454, approved by the State Board of Health on July 17, 1958. Where it is impractical to secure or construct reinforced concrete floor assemblies, wood construction will be accepted provided the floor slab is made of rough sub-flooding and covered with tight tongue - and - groove flooring or other type flooring materials to provide strength and prevent entrance of flies and mosquitoes to the privy pit. Where wood construction is used, floors shall be anchored to at least 4 x 4 sills.
4. Wood used for riser and seat assemblies shall be tongue-and-groove or plywood (exterior or marine) material.

B. Septic Tank

1. The "septic tank" shall be of watertight construction, structurally sound and not subject to excessive corrosion or decay. Tanks of rectangular design, similar to that specified in Division of Health Services Bulletin No. 519, approved by the State Board of Health, March 17, 1960, are recommended. If prefabricated tanks, or tanks of other design are used, they shall be constructed in accordance with plans which have been approved by the Division of Health Services, and shall comply with all other requirements of this section.

Septic tanks of 1,600 gallon liquid capacity or larger shall be of two-compartment design and construction. The inlet compartment of a two-compartment tank shall be between $\frac{2}{3}$ and $\frac{3}{4}$ of the total tank capacity. Two compartment septic tanks are recommended for tanks of less than 1,600 gallon capacity.

A dosing syphon or pump shall be used for discharging septic effluent into nitrification lines when the volume of the tank is more than 3,000 gallons and the total length of such lines is 500 feet or more. When the total length of such lines is 1,000 feet or more, alternating syphons or pumps shall be used. Discharges from syphon or pump systems shall be of such design so as to fill the nitrification lines 60% to 75% of their capacity at each discharge.

2. Minimum liquid capacities for septic tanks shall be in accordance with the following:

a. Residential Septic Tanks (For each individual residence)

<u>Number of Bedrooms</u>	<u>Minimum Liquid Capacity</u>	<u>Equivalent Capacity per Bedroom</u>
2 or less	750 gallons	385 gallons
3	900 gallons	300 gallons
4	1,000 gallons	250 gallons

For each additional bedroom, add 250 gallons. These figures provide for use of garbage grinders, automatic clothes washers, and other household appliances.

b. Septic Tank Other Than Residential

Septic tanks for commercial or institutional installations shall be sized according to accepted engineering practice and the size of each installation shall be determined on the basis of specific needs. For determining required minimum capacities for installations serving other than residences, use the daily flow in Table I in the "Technical Guide for the Evaluation of Proposed Sites for Soil Absorption Systems of Sewage Disposal", Part II of these Rules and Regulations hereinafter referred to as the "Technical Guide".

c. The minimum capacity of any septic tank shall be 750 gallons.

SECTION IV - Sites for Soil Absorption Systems

A. Site Evaluation

The Division of Health Services or Health Department shall investigate each proposed site. The investigation may include the evaluation of the following factors:

1. Topography
2. Soil Characteristics
 - a. Texture
 - b. Structure
 - c. Depth
 - d. Restrictive Horizons
 - e. Drainage
3. Grand Water Elevation
4. Depth to Impervious Strata
5. Percolation Tests
6. Elevation of the ground surface above tide level.

Evaluations shall be made in accordance with the "Technical Guide", and other accepted public health principles. Based on this evaluation, each of the factors (1-6) shall be classified as SUITABLE, PROVISIONALLY SUITABLE, or UNSUITABLE.

B. Application Rates

In determining the volume of sewage from residences, the flow rate shall be 75 gallons per person per day; and each bedroom shall be considered the equivalent of 2 persons. For establishments other than residences, the flow rate shall be determined from Table I, Part II, "Technical Guide".

In calculating the amount of square feet of area needed for the nitrification field in trench system, the maximum trench width used in the calculations shall be 36 inches, even though the actual trench width may be constructed larger. Trenches shall be not less than 8 feet on centers.

The Division of Health Services or Health Department agency may

permit the use of a bed system in lieu of a trench system for the nitrification field when it has been determined that the trench system is impractical or impossible because of topography or space limitations. In such cases, the amount of square feet of area needed shall be increased by 50% over what would be required for a trench system; or in lieu of the added area, the amount of gravel or stone under the drain lines shall be increased to a depth of not less than 12 inches. The extra area is needed to compensate for the loss of trench sidewall area in the bed systems. Drain lines shall be at least 18 inches from the side of the bed and shall be not less than three feet on centers.

1. Sites classified as SUITABLE may receive application of septic tank effluents up to 1.5 gallons per square foot per day.
2. Sites classified as PROVISIONALLY SUITABLE may receive septic tank effluents up to 0.75 gallons per square foot per day; except that where percolation rates exceed 60 minutes per inch, the application rate shall not exceed 0.5 gallons per square foot per day.
3. Sites classified as UNSUITABLE shall not be used for soil absorption disposal systems, unless engineering, hydrogeologic, and soil studies indicate to the State or local agency that a suitable septic tank system or a suitable alternate system can reasonably be expected to function satisfactorily.

C. Available Space

Sites shall have sufficient available space to permit the in-

stallation and proper functioning of ground absorption sewage disposal systems, based upon the square footage of nitrification field required for the application rate previously determined. Sites classified as PROVISIONALLY SUITABLE should have sufficient available space to accommodate a replacement nitrification field.

All systems with a design capacity of over 3,000 gallons per day shall have provided sufficient area to accommodate a replacement nitrification field.

SECTION V - Location of Septic Tank Systems and Privies - Lot Sizes

- A. Every septic tank system and privy shall be located at least the minimum horizontal distance from the following:
1. Any private water supply 100 feet, or maximum feasible distance, but in no case less than 50 feet
 2. Any community water supply 100 feet
 3. Streams classified as A-II 50 feet
 4. Waters classified as S.A. 100 feet from normal high tide mark
 5. Any other stream, marsh or coastal waters 50 feet
 6. Any Class I or Class II impounded reservoir used as a source of drinking water 100 feet from high water line
 7. Any other lake or impoundment. . . 50 feet from high water line
 8. Any building foundation 10 feet
 9. Any basement 15 feet
 10. Any property line 10 feet
 11. Top of slope of terraces, embankments or cuts 15 feet
 12. Any water line 10 feet

- B. Septic tank systems and privies shall not be installed in fill ground unless the site complies essentially with the requirements of these regulations, and is specifically approved by the Pamlico County Health Department.
- C. Septic tank systems and privies shall not be installed in swampy areas.
- D. Septic tank systems and privies shall be located downhill from wells or springs, if possible.
- E. Septic tank systems and privies shall not be located in areas subject to frequent flooding.
- F. Septic tank systems and privies shall not be located where ground water may become contaminated.
- G. Septic tank systems shall not be located under paved areas or driveways, except that a solid cast iron or other suitable pipe may be permitted to convey the effluent under a driveway from the septic tank to the nitrification field.
- H. No septic tank system shall be located on lands less than 30" above normal tide.
- I. No septic tank system shall be located on any lot to which the water supply is to be from an approved municipal or community water system unless such lot shall be at least 15,000 square feet in area.
- J. No septic tank system shall be located on any lot to be served by a water source other than an approved municipal or community water system unless such lot shall be at least 20,000 square feet in area.
- K. ~~The~~ minimum lot sizes provided in subsection I and J of this section may be reduced by the Health Department by 20% if the

site is classified as SUITABLE.

- L. The minimum lot sizes provided for in subsections I and J of this section may be increased by the Health Department by 50% if the site is classified as PROVISIONAL or if the percolation test rate is in excess of sixty (60) minutes.

SECTION VI - Maintenance

A. Approved Privies

Any person owning or controlling the property upon which a privy is located, shall be responsible for Item Numbers A. 1, 6, and 7, as listed below regarding the maintenance of approved privies.

The tenant or person occupying the property shall be responsible for Item Numbers A. 2, 3, 4, 5, and 8 regarding the maintenance of approved privies.

1. The privy building shall afford a reasonable degree of protection from bad weather conditions.
2. The walls, floor and seat of the privy and the grounds immediately adjacent to the building must be kept in a clean and decent condition.
3. Chickens and other animals shall not be harbored in the privy building.
4. Seat cover shall be hinged and closed at all times when privy is not in use.
5. Flies shall be excluded from the pit at all times. The application of a cup full of kerosene or used oil once each week will assist in controlling mosquito breeding and keep down odors.
6. When the pit becomes filled to within 18 inches of the top of the ground, the privy building must be moved to a new pit

and the old pit completely covered with earth.

7. If the pit should cave in, a new pit shall be provided.

8. Ashes, garbage and trash shall be kept out of the pit.

B. Septic Tanks

Any person owning or controlling the property upon which a septic tank system is installed shall be responsible for the following items regarding the maintenance of the system.

1. Septic tanks shall be maintained at all times to prevent seepage of sewage or effluents to the surface of the ground.
2. Septic tanks need occasional cleaning and should be checked at least each three years to determine if sludge needs removing (Once a year if garbage grinders are discharging to the tank).
3. Contents removed from septic tanks shall be discharged into an approved sewer system, buried or plowed under at an approved location within 24 hours, or otherwise disposed of at a location and in a manner approved by the State or Local Agency.

SECTION VII - Permits

- A. No person shall install or cause to be installed any sewage disposal system or privy without first having obtained a written permit from the Health Department as provided by law.

Permits shall become invalid after 12 months from the date of issue, if the installation has not been completed during that time period, unless otherwise specified in writing. When a permit has become invalid, the installation shall not be commenced or completed until a new permit has been obtained.

- B. Any person other than the owner, tenant or manager of a residence, place of business, or place of public assembly, who en-

gages in the business of constructing or installing septic tank systems, or the cleaning of septic tanks, shall register with the local health director in the county where he operates before constructing or installing septic tank systems, or collecting and disposing of septic tank contents.

- C. The Health Department may grant the permits required by Section 130-166.25 and 130-166.26 of the General Statutes of North Carolina in connection with the restoration, reconstruction or rebuilding of a residence, place of business or place of public assembly where the building has been damaged or destroyed by fire, windstorm or other casualty, provided (1) there is a septic tank system located on the premises which formerly served the building; (2) that such septic tank system was approved by the Health Department when installed, and (3) the septic tank system is functioning properly in the manner it was designed to function.

PART II
TECHNICAL GUIDE
FOR THE
EVALUATION OF PROPOSED SITES FOR
SOIL ABSORPTION SYSTEMS OF SEWAGE DISPOSAL

This Technical Guide shall be used in the evaluation of proposed sites for soil absorption systems except where the State or local agency determine that peculiar or unusual circumstances justify the use of other criteria which shall be consistent with good public health practice.

SECTION I - Site Factors

In order to determine whether a site can be used for disposing of a septic tank effluent, a number of factors shall be taken into consideration. These factors include topography, soil characteristics, ground water elevation, depth to impervious strata, and percolation tests.

A. TOPOGRAPHY

1. Uniform slopes under 15% shall be considered SUITABLE with respect to topography. When slopes are less than 2%, provisions shall be made to insure good surface drainage of rainfall or runoff from buildings or paved areas. Complex slope patterns and slopes dissected by deep gullies and ravines are not suitable. The surface area on or around a soil absorption system shall be graded to provide adequate drainage; and such a system shall not be located in a depressed area. Good surface drainage is essential and shall be provided to prevent soil saturation around the system during rainy periods.

2. Uniform slopes between 15% and 30% shall be considered PROVISIONALLY SUITABLE with respect to topography, if the soils are deep and there are no restrictive horizons. Complex slope patterns and slopes dissected by deep gullies and ravines are not suitable. Slopes within this range may require installation of drainage lines up-slope from the soil absorption system to remove all excess water that might be moving laterally through the soil during wet periods of the year. The interception of lateral ground water movement shall be provided where necessary to prevent soil saturation around the soil absorption system. Usable areas larger than minimum are ordinarily required in this slope range.
3. Slopes greater than 30% shall be considered UNSUITABLE, unless a thorough study of the soil characteristics indicate that a soil absorption system will function satisfactorily and sufficient ground area is available to properly install such a system.

B. SOIL CHARACTERISTICS

Unless soil characteristics have been previously established, soil borings shall be taken in the area to be used for soil absorption systems. Such borings shall be taken to depths of at least 48 inches. From these soil borings and observation of core samples, most of the significant soil characteristics can be evaluated; and a determination can be made as to the suitability of the soil to absorb septic tank effluent. The important soil characteristics which shall be determined are as follows:

1. TEXTURE - The relative amounts of the different sizes of mineral particles in a soil is referred to as soil texture. All soils are composed of sand, (2.0 - 0.05 mm in size); silt, which includes intermediate-sized particles that cannot be seen with the naked eye, but feels like flour when pressed between the fingers, (0.005 - 0.002 mm in size); and clay, which is extremely small in size and is the mineral particles that gives cohesion to a soil (less than 0.002 mm in size). The texture of the different horizons of soils may be classified into three general classes.

a. Sandy textures - Soils that exhibit a gritty feel when rubbed between the fingers, that crumble when moist or wet, and that will not leaf out when pressed between the thumb and index finger, should be classified as sandy textures. Sandy soils contain more than 70% sand sized particles in the soil mass. These soils do not have enough clay to be cohesive. Sandy soils have favorable percolation rates, but may have a low filtering capacity.

b. Loamy soils - When moist or wet, loamy soils may be rolled into a ball that will stick together but is easily crushed. When pressed between the fingers, loamy soils will leaf from between the fingers to 1/4 to 1/2 inch before breaking. Loamy soils contain less than 70% sand sized particles and more than 18% clay sized particles in the soil mass. They exhibit little or no stickiness. Loamy soils generally have favorable

percolation rates and are excellent filters. Loamy soils are the most desirable for effluent treatment and shall be considered SUITABLE with respect to texture.

- c. Clayey soils - These are soils with more than 40% of the soil mass made up of clay particles. Clayey soils, when moist or wet, may be rolled into a compact, smooth ball and resist pressure when crushed between the fingers. When wet and pressed between the fingers, clayey soils will leaf out to 1/2 inch or more in length before breaking. The type or kind of clay in soils is very significant. There are two major types of clays: The 1:1 clays (Kaolinite) which does not shrink when dry or swell when wet; and the 2:1 clays (Montmorillonite) that will shrink when dry and swells when wet. The 2:1 clays crack when dry and allow water or septic tank effluent to move freely through the soil for 48 to 72 hours. They then become saturated and swell, resulting in no movement of liquids through the soil. 2:1 clays may sometimes be identified by the presence of cracks in the soil when dry, and are plastic and sticky when wet. These clays will have an olive and greyish mottled appearance, or splotches intermingled with the yellow and red clay colors.
- 1:1 clay soils shall be considered PROVISIONALLY SUITABLE as to texture; 2:1 clays shall be considered UNSUITABLE as to texture.
- d. Organic soils shall be considered UNSUITABLE as to texture.

2. Soil Structure - In many soils, the sand, silt, and clay particles tend to cling or stick to one another to form a ped or a clump of soil. This is known as soil structure. Soil structure may have a significant effect on the movement of effluent through a soil. The structure is not very important in sandy-textured soils or in loamy-textured soils, and these types of soils shall be considered SUITABLE as to structure. The three kinds of soil structure that are most significant in movement of sewage effluent through soils are blocky, platy, and the absence of soil structure or massive conditions.

a. Blocky soil structure

(1) In clayey soils, if the soil exhibits many peds of angular and subrounded peds, then the soils have blocky structure. The sewage effluent may move between the cracks of these blocky types of peds. Blocky soil structure in clayey soils is frequently destroyed by mechanical equipment manipulating the soil when it is too wet. Trenches for nitrification lines being placed in clayey soils with blocky structure should only be dug when soils are moist or dry. Blocky soil structure in clayey soils shall be considered PROVISIONALLY SUITABLE as to structure.

(2) Some rocks, even though weathered, such as slates or creviced or fractured rocks, exhibit blocky structure, which is not changed by moving water, thereby allowing fluids to move downward without filtration. Such soils shall be considered UN-

SUITABLE as to structure.

- b. Platy soil structure - If clayey soils fall out into platelike sheets, then the soils would have platy structure; and water or effluent movement through these horizons would be extremely slow, and the structure shall be considered UNSUITABLE.
- c. Absence of soil structure - Some clayey soils exhibit no structure aggregates; and in these kinds of soils, percolation would be zero or extremely slow. Such structure shall be considered UNSUITABLE.
- 3. Soil Depth - The depth of soils classified as SUITABLE or PROVISIONALLY SUITABLE as to texture and structure shall be at least 48 inches when conventional ground absorption systems are to be utilized.
- 4. Restrictive Horizons - Restrictive layers or horizons in soils may generally be recognized by the resistance offered in digging a hole or in using a soil auger. Restrictive horizons are variable in their characteristics. Massive or solid bedrock may be classed as a restrictive horizon. Where this bedrock lies shallower than 48 inches to the surface, it will perch sewage effluent and in many instances will allow sewage effluent to move laterally and seep to the surface on a lower part of the landscape. Another restrictive horizon may be caused by iron pans or plinthite. These horizons may generally be recognized by their brittleness and by the presence of red and grey colored soil materials. The red materials quite frequently will be in the form of nodules of very brittle fragments. These kinds

of horizons will also perch sewage effluent and limit the storage capacity of a soil being used for disposition of effluent. The third common restrictive horizon is a cemented iron-aluminum-organic hardpan. This is very brittle when dry and will perch sewage effluent. Soils in which restrictive horizons are less than 48 inches below the ground surface or less than 12 inches below the trench bottom of subsurface nitrification lines shall be considered UNSUITABLE, except in cases where restrictive horizon occurring close to the ground surface have underlying soil stratas suitable for subsurface disposal, and the ground water table is at least 48 inches below the restrictive horizon. In these cases, the soil shall be considered SUITABLE with respect to restrictive horizons, provided the restrictive horizon is penetrated.

5. Soil Drainage - Soils with seasonally high water tables are of major concern in evaluating sites for sewage effluent disposal. These are the soil areas that give good percolation rates during dry seasons of the year but force sewage effluent to the surface during the wetter seasons. The depth of the seasonal high water table can commonly be recognized by those examining soil profiles. The criteria for recognition of high water tables is that of soil color. Subsurface horizons that are in colors of reds, yellows and browns indicate good soil aeration and drainage throughout the year. Subsurface horizons that are in colors of grey, olive or bluish colors indicate poor aeration and poor soil drainage. These dull or greyish colors may occur

as a solid mass of soil or may be in mottles of localized spots. The volume of greyish colors is indicative of the length of time that free water stands in that soil profile. There are soils that have light-colored mottles which are relic from the light-colored rock from which the soils have weathered. These soils would not have high water tables, so one must distinguish between a true soil composed of sand, silts and clays, or the rock material that may still exist in the soil profile. Any soil profile that has the greyish colors, indicative of high water tables, or is subject to tidal or periodic high water, within 36 inches of the surface shall generally be considered UNSUITABLE as to drainage. Where the soil is considered suitable as to structure and texture, and modifications can be made to keep the ground water table at least 12 inches below the bottom of the trench, such soils shall be considered PROVISIONALLY SUITABLE as to drainage.

C. PERCOLATION TESTS

Unless soil characteristics have been previously established, at least three percolation tests shall be made in the exact area where the nitrification lines are to be installed. Such percolation tests shall be conducted in accordance with procedures outlined in DHS Bulletin No. 519, approved by the State Board of Health on March 17, 1960. If the average time for the water to fall 1 inch in the test hole is 30 minutes or less, the percolation test shall be considered SUITABLE; between 30 minutes and 60 minutes, PROVISIONALLY SUITABLE; and over 60 minutes, UNSUITABLE. However, if the soil texture and structure are classi-

fied as suitable or provisionally suitable, percolation rates up to 120 minutes may be considered PROVISIONALLY SUITABLE.

There is dissension over the validity of percolation tests. It is certain that one percolation hole on a site does not indicate the ability of a soil area to handle sewage effluent. Where percolation tests are used, three percolation tests should be conducted in the exact area that nitrification fields will be installed. Variability in percolation tests result for the following reasons: percolation test holes represent only a small portion of the filter field; root channels and worm holes intercepting the percolation hole will give erroneous percolation results; moisture conditions at the time of the percolation test will give wide variability in results; mechanical digging or auger boring for the percolation hole will often destroy soil structure; dry clays, with shrink-swell potential, will give good percolation rates for as long as 48 to 72 hours; the characteristics of sewage effluent are different from those of the water used in percolation tests. Soils with sandy or loamy textured profiles, without restrictive horizons, or in the absence of high water tables will give percolation rates of less than 60 minutes per inch. Soils with clayey profiles will commonly have percolation rates of greater than 60 minutes per inch, dependent on soil structure, kind of clay, and past land use.

D. DETERMINATION OF SOIL SUITABILITY

All of the above criteria under topography, soil characteristics and percolation tests shall be determined to be SUITABLE, PROVISIONALLY SUITABLE, or UNSUITABLE as indicated. If

all criteria are classified the same, that classification will prevail. However, it is unlikely that all criteria, will be classified the same in all situations. Where there is a variation in classification of the several criteria, the following shall be used in making the overall determination, and is summarized in Table II.

1. If the soil structure is classified as unsuitable, the overall classification will be UNSUITABLE, regardless of the classification of the other criteria.
2. If the soil texture is classified as unsuitable, and the soil structure is provisionally suitable, the soil texture may be reclassified as PROVISIONALLY SUITABLE.
3. When soil depth is classified as unsuitable, it may be reclassified as PROVISIONALLY SUITABLE if shallower trenches or a mound system can be constructed.
4. When the restrictive horizon is classified unsuitable, it may be reclassified as SUITABLE under the conditions outlined in B. 4.
5. When drainage (ground water level) is unsuitable, it may be reclassified as PROVISIONALLY SUITABLE under the conditions outlined in B. 5.
6. Percolation rates in excess of 60 minutes, but not exceeding 120 minutes may be classified as PROVISIONALLY SUITABLE under conditions outlined in C.

E. AVAILABLE SPACE

Sites shall have sufficient available space to permit the installation and proper functioning of ground absorption sewage disposal systems, based upon the square footage of nitrification

field required for the application rate previously determined. Sites classified as PROVISIONALLY SUITABLE should have sufficient available space to accommodate a replacement nitrification field.

All systems with a design capacity of over 3,000 gallons per day shall have provided sufficient area to accommodate a replacement nitrification field.

F. APPLICATION RATES

In determining the volume of sewage from residences, the flow rate shall be 75 gallons per person per day; and each bedroom shall be considered the equivalent of 2 persons. For establishments other than residences, the flow rate shall be determined from Table I, Part II, "Technical Guide".

In calculating the amount of square feet of area needed for the nitrification field in trench system, the maximum trench width used in the calculations shall be 36 inches, even though the actual trench width may be constructed larger. Trenches shall be not less than 8 feet on centers.

The State or local agency may permit the use of a bed system in lieu of a trench system for the nitrification field when it has been determined that the trench system is impractical or impossible because of topography or space limitations. In such cases, the amount of square feet of area needed shall be increased by 50% over what would be required for a trench system; or in lieu of the added area, the amount of gravel or stone under the drain lines shall be increased to a depth of not less than 12 inches. The extra area is needed to compensate for the loss of trench sidewall area in the bed systems.

Drain lines shall be at least 18 inches from the side of the bed and shall be not less than three feet on centers.

1. Sites classified as SUITABLE may receive application of septic tank effluents up to 1.5 gallons per square foot per day.
2. Sites classified as PROVISIONALLY SUITABLE may receive septic tank effluents up to 0.75 gallons per square foot per day; except that where percolation rates exceed 60 minutes per inch, the application rate shall not exceed 0.5 gallons per square foot per day.
3. Sites classified as UNSUITABLE shall not be used for soil absorption disposal systems, unless engineering, hydro-geologic, and soil studies indicate to the local agency that a suitable alternative to a septic tank system can reasonably be expected to function satisfactorily.

G. OTHER APPLICABLE FACTORS INVOLVING ACCEPTED PUBLIC HEALTH PRINCIPLES

The site evaluation should include consideration of any other applicable factors involving accepted public health principles, such as:

1. The proximity of a large-capacity water-supply well, the cone of influence of which would dictate a larger separation distance than the minimum distance specified in Section V, Part I, of the Regulations.
2. The potential public health hazard of possible failures of soil absorption systems involving large quantities of sewage, which would dictate larger separation distances than the minimums specified in Section V, Part I, of the Regulations.

3. The potential public health hazard of possible massive failures of soil absorption systems proposed to serve large numbers of residences, as in residential subdivisions or mobile home parks.
4. Other circumstances peculiar to individual situations.

TABLE NO. I

The following estimates of sewage quantities are the minimums required for use in determining the volume of septic tanks being designed to serve selected types of establishments. The figures include volume necessary to handle the sewage flow and provide sludge storage, and may differ from estimated sewage flows used in the design of municipal or community sewerage systems.

<u>TYPE OF ESTABLISHMENT</u>	<u>DAILY FLOW FOR DESIGN</u>
Airports (also R. R. stations, bus terminals, not including food service facilities)	5 gal/passenger
Barber Shops	100 gal/chair
Beauty Shops	125 gal/booth or bowl
Bowling Alleys	50 gal/lane
Camps	
Construction or work camps	50 gal/person
Summer Camps	50 gal/person
Camp grounds	150 gal/campsite
Churches.	5 gal/member
Country Clubs - Resident members	75 gal/person
Non-resident members	20 gal/person
Day Care Facilities	15 gal/person

Factories (exclusive of industrial wastes) - per shift	25 gal/person
Hospitals.	300 gal/bed
Laundries (self-service)	500 gal/machine
Motels/Hotels	75 gal/room
With cooking facilities in room	125 gal/room
Resort	200 gal/room
Offices - Per shift	25 gal/person
Nursing/Rest Homes - with laundry	150 gal/bed
- without laundry	75 gal/bed
Residential Care Facilities	75 gal/person
Restaurants.	40 gal/seat
Schools: Day Schools	15 gal/person

NOTE: Use 20 gal/person if aerobic treatment is proposed.

Boarding Schools	75 gal/person
Day workers.	25 gal/person
Service Stations	250 gal/water closet or urinal

NOTE: If food service is included, add 40 gal/seat

Swimming Pools and Bathhouses	10 gal/person
Theaters - Auditoriums	3 gal/seat
Drive-In	5 gal/car space
Travel Trailer Parks	150 gal/space

TABLE NO. II

POSSIBLE MODIFICATIONS OF INITIAL CLASSIFICATIONS

(This table does not include all possible combinations, but includes those which could result in up-grading the initial classification).

<u>Criteria</u>	<u>Initial Classification</u>	<u>Modifying Factors</u>	<u>Final Classification</u>
TOPOGRAPHY	UNSUITABLE	Soil Characteristics; Suitable or Provisionally Suitable, and sufficient area available.	PROVISIONALLY SUITABLE
SOIL CHARACTERISTICS			
(a) Texture	UNSUITABLE	Soil Structure Provisionally Suitable, Soil Depth, Restrictive Horizon and Drainage Suitable.	PROVISIONALLY SUITABLE
(b) Structure	UNSUITABLE	None	UNSUITABLE
(c) Depth	UNSUITABLE	Use of Shallow Trench Use of Mound System	PROVISIONALLY SUITABLE
(d) Restrictive Horizon	UNSUITABLE	Restrictive Horizon close to surface; Underlying Soil Strata Suitable; Water Table 1' or more Below Bottom of Trench.	SUITABLE
(e) Drainage	UNSUITABLE	Lower Ground Water Table to at Least 1' Below Bottom of Trench.	PROVISIONALLY SUITABLE
GROUND WATER ELEVATION	UNSUITABLE	Lower Ground Water Table to at Least 1' Below Bottom of Trench.	PROVISIONALLY SUITABLE
DEPTH TO IMPERVIOUS STRATA	UNSUITABLE	Restrictive Horizon Close to Surface; Underlying Soil Strata Suitable; Water Table 1' or More Below Bottom of Trench.	PROVISIONALLY SUITABLE

PERCOLATION
TEST

UNSUITABLE
(60-120 Min/inch)

Soil Structure
and Texture
Suitable or Pro-
visionally Suit-
able

PROVISIONALLY
SUITABLE

SECTION III - Interpretation and Technical Assistance

- A. INTERPRETATION - The provisions of this Technical Guide shall be interpreted, as applicable, in accordance with the recognized principles and practices of soil science.
- B. TECHNICAL ASSISTANCE - State agencies will provide technical assistance. Local agencies shall obtain technical assistance from soil scientist personnel, and local soil survey information.

PART III

APPLICABILITY, EFFECTIVE DATE, AND FURTHER GENERAL PROVISIONS SECTION III

Conflicting Rules and Regulations Repealed

All rules and regulations heretofore adopted by the Pamlico County Board of Health which are in conflict with the provisions of these rules and regulations are hereby repealed.

SECTION IV - Severability

If any provision of these rules and regulations or the application thereof to any person or circumstance is held invalid, the remainder of the rules and regulations or the application of such provisions to other persons or circumstances shall not be affected thereby.

SECTION V - Effective Date

The foregoing rules and regulations and technical guide were adopted at a meeting of the Pamlico County Board of Health on Janaury 22, 1975, and will be in full force and effect from and after March 1, 1976.

Certified as a true copy,

Director
Pamlico County Health Department

